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ENTERED AT THE POSTOFFICE, MEDINA, OHIO, AS SECOND CLASS MATTER.

GLEANINGS IN BEE CULTURE.

ESTABLISHED IN 1873.

DEVOTED TO BEES, HONEY, & HOME INTERESTS.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, - MEDINA, O.

A. I. ROOT, EDITOR.

ERNEST R. ROOT, - - ASSOCIATE EDITOR.

J. T. CALVERT, BUSINESS MANAGER.

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RATES.

1 to 2 insertions, per line			..20c
3 to 5	"	"	..19c
6 to 11	"	"	..18c
12 to 17	"	"	..17c
18 to 23	"	"	..16c
24 insertions	"	"	..15c

On from 3 to 7 inches space, 1c per line *less* than above rates.

On 8 inches or more, 2c per line *less*.

On less than 5 lines space, 1c per line more than above rates.

By nonpareil line we mean $\frac{1}{12}$ of an inch of space up and down the column. Twelve nonpareil lines of space, therefore, measure one inch. Remember that an ad. that is "displayed" may have only two or three lines of big letters, yet may measure 24 nonpareil lines of *space*.

For electrotyped advertisements we will allow an additional discount of 5 per cent.

A. I. ROOT, Medina, O.

CLUBBING LIST.

We will send GLEANINGS with—

The American Bee Journal, weekly,	($1.00)	$1.75
The Canadian Bee Journal, weekly,	(.75)	1.65
The Bee-Keepers' Review,	(1.00)	1.75
The British Bee Journal.	(1.50)	2.00
American Apiculturist,	(.75)	1.70
American Bee-Keeper,	(.50)	1.40
All of the above journals,		5.65
American Agriculturist,	($1.50)	2.25
American Garden,	(2.00)	2.60
Prairie Farmer,	(1.50)	2.35
Rural New-Yorker,	(2.00)	2.00
Farm Journal,	(.50)	1.20
Scientific American,	(3.00)	3.75
Ohio Farmer,	(1.00)	1.90
Popular Gardening,	(1.00)	1.85
U. S. Official Postal Guide,	(1.50)	2.25
Sunday-School Times, weekly,	(1.50)	1.75
Drainage and Farm Journal,	(1.00)	1.75
Fanciers' Monthly,	(1.00)	1.75
Illustrated Home Journal,	(.50)	1.35
Orchard and Garden,	(.50)	1.40

[*Above Rates include all Postage in U. S. and Canada.*]

Hebblewhite & Co., 369 George St., Sidney, New South Wales, are our authorized agents for Australia and adjacent islands. All remittances for subscriptions should be made to them. Subscription price, 5 shillings per annum postpaid.

Names of responsible parties will be inserted in either of the following departments, at a uniform price of 20 cents each insertion, or $2.00 per annum, when given once a month, or $4.00 per year if given in *every* issue.

UNTESTED QUEENS

For $1.00 from July 1st. till Nov. 1st.

Names inserted in this department the first time without charge. After, 20c each insertion, or $2.00 per year.

Those whose names appear below agree to furnish Italian queens for $1.00 each, under the following conditions: No guarantee is to be assumed of purity, or anything of the kind, only that the queen be reared from a choice, pure mother, and had commenced to lay when they were shipped. They also agree to return the money at any time when customers become impatient of such delay as may be unavoidable.

Bear in mind, that he who sends the best queens, put up most neatly and most securely, will probably receive the most orders. Special rates for warranted and tested queens, furnished on application to any of the parties. Names with *, use an imported queen-mother. If the queen arrives dead, notify us and we will send you another. Probably none will be sent for $1.00 before July 1st, or after Nov. If wanted sooner or later, see rates in price list.

*A. I. Root, Medina, Ohio.
*H. H. Brown, Light Street, Col. Co., Pa. 7tfd90
*Paul L. Viallon, Bayou Goula, La. 7tfd90
*S. F. Newman, Norwalk, Huron Co., O, 7tfd90
C. C. Vaughn, Columbia, Tenn. 9tfd90
Jenkins & Parker, Wetumpka, Ala. 9tfd90
E. L. Goold & Co., Brantford, Ont., Can. 9tfd
*W. A. Compton, Lynnville, Giles Co., Tenn. 9tfd
*Oliver Hoover & Co., Snydertown, Northumberland Co., Pa. 19tf90
John Shearer, Osceola, Wash Co., Va. 11d
D. A. McCord, Oxford, Butler Co., O. 11-23d
* F. H. & E. H. Dewey, Westfield, Hamp. Co., Mass. 11-9
A. J. Higgins, Washington Mills, Dub. Co., Ia. 14-12
*S. P. Roddy & Bro., Mt. St. Marys, Md. 15-17-19d
*E. S. Eaglesfield, Berlin, Green Lake Co., Wis.

HIVE MANUFACTURERS.

Who agree to make such hives, and at the prices named, as those described on our circular.

A. I. Root, Medina, Ohio.
P. L. Viallon, Bayou Goula, Iberville Par., La 7tfd90
C. W. Costellow, Waterboro, York Co., Me. 7tfd90
Leahy Mfg. Co., Higginsville, Laf. Co., Mo. 9tfd90
Jenkins & Parker, Wetumpka, Ala. 9tfd90
W. T. Falconer Mfg. Co., Jamestown, N. Y. 7tfd

Contents of this Number.

SPECIAL NOTICES.

MAPLE SUGAR STIRRED OFF DRY.

If any of the friends have, like myself, a sweet tooth for this kind of sugar, I wish to tell them that we have about 100 lbs. of extra nice. It was brought in by one of our Medina County farmers a few days ago. We can sell it to you for 8 cts. per lb. as long as it lasts. If you have never tasted maple sugar stirred off dry, there is a pleasant surprise in store for you; at least, that is what *I* think. It is especially nice on oatmeal, cornmeal mush, or any thing of that sort. Put on plenty of butter, then sift in the sugar, add a little cream, and—try it yourself.

PROF. W. I. CHAMBERLAIN'S NEW BOOK ON UNDER-DRAINING.

This book is now in press, and 32 pages are already printed, and another 32 will be out very soon. The book is to be a companion to the industrial manuals which we have been publishing; viz., The A B C of Strawberry Culture; The A B C of Potato Culture; Prof. Cook's Book on the Sugar-bush; Winter Care of Horses and Cattle, etc. Perhaps no better thing can be said of the book than to copy an editorial from the *Rural New-Yorker* of Aug. 29. The *Rural* was permitted to use some of the cuts intended for the book, with an article written by friend Chamberlain. Here is what they say:

It is now nearly forty years since W. I. Chamberlain laid his first underdrain. In that one, cobble stones were used for tile. He has now, as he tells us elsewhere, fifteen miles of tile on his farm. The article printed in this number gives the conclusions drawn from forty years of actual observation of the effects of tile drainage on a soil that is typical of thousands of acres in Ohio, and of millions of acres in this country. A dapper young minister once asked Dr. Lyman Beecher, after listening to one of his great sermons, "How long did it take you, Mr. Beecher, to write that sermon?" "Forty years!" was the instant and emphatic reply; and it was a fact, because the ideas advanced in the sermon were based upon the thought and observation of that length of time. In a like manner we may safely say that Mr. Chamberlain has been forty years in writing this article on drainage. As to our opinion of its value, we can only say that, if any better statement of the matter has ever been printed, we wish to know where it is that we may publish it in our journal. We like these forty-year articles so well that we have planned for a number of them during the coming year.

The price of the book will probably be 40 cents—certainly not less. If any of you are at work on underdraining, or want information right away, send us 40 cts. and you may have the advance sheets of the book as fast as it is printed, besides having a complete copy when done. Of course, A. I. Root will have something to say in the book, as he did when Terry wrote about strawberries.

KIND WORDS FROM OUR CUSTOMERS.

The Star butcher-saw plates from you fill the bill exactly to a dot. How nicely they cut, how easily they work in the orchard! Yes, and how cheap they are for the money! L. R. HILLMAN.
Canova, S. Dak., July 28.

A KIND WORD FOR TWO (?) GOOD PERIODICALS.

I can't resist subscribing for the *Rural New-Yorker* when I can get it for $1 25, even if money is short and cheap papers plentiful. The *Rural* is worth half a dozen of the cheap monthlies, and I will not get along without GLEANINGS as long as I can get the dollar. Give us more of the garden department, also fruit, especially small fruits.
Grand View, Tenn. A. F. AMES.

Friend Root:—If I was pleased with your select tested queen when she arrived, I am more than pleased now that her progeny has appeared. Her workers are very gentle and energetic, beautifully marked, and altogether handsome and pleasing to the eye. Her long confinement in the mail has evidently not been detrimental to her, as she is *very* prolific, and her strain is destined to predominate largely in my apiary. Since reading your strawberry book, I've got the strawberry fever right bad, and should like to know how I can obtain some of the varieties mentioned therein. Kindly let me know how it is possible to get them.
Goodna, Queensland, Aus., Oct. 2. H. L. JONES.

SOMETHING FURTHER IN REGARD TO THE INTERNAL WATER CURE.

Your little pamphlet on the internal use of hot water I happened to see. I have had occasion many times to use the remedy for constipation, and believe a more systematic use, as you recommend, would benefit me, and perhaps cure the internal piles I now have. I would respectfully suggest to you the importance of saying in the pamphlet that the injection should not be used within an hour or two after eating—at night on retiring or in the morning on rising; digestion is interfered with otherwise; also a little salt added to the water lessens the severity of the stinging. Snuff water up the nose clear, and see hows it hurts; add a little salt, and see how it softens and smooths it. The nozzle of the syringe should be greased—vaseline is good—before inserting it into the delicate member.
With thanks for your humanitarian effort, I am—
Brooklyn, N. Y., Nov. 1. A. F. W. GRANT.

SOME KIND WORDS FROM A COLLEGE PROFESSOR.

Mr. Root:—I have this minute finished reading your little pamphlet on "A New Method of Treating Disease Without Medicine." I have long wanted just such a point in hygiene, not for my own use, but for my patients and those under my care. I admire your straightforward way of putting the truth. I do not doubt that you have already done much good by the distribution of this little tract. Here is another thing that will interest you. A pint of cold water taken into the stomach on rising, one hour before breakfast, washes out from the stomach all accumulated mucus, and stimulates the stomach to secrete a profuse supply of gastric juice. The water and mucous from the stomach pass on down through the alimentary canal, softening and lubricating every thing therein, so that, within half an hour after breakfast, a free, easy passage of the bowels occurs. It seems to me that this remedy combined with yours ought to keep the system pretty well washed out. There is nothing deleterious in the drink of cold water we have before breakfast. Let me thank you again for your pamphlet. You very kindly offer to furnish the pamphlets to any one who can use them for the benefit of mankind. I have many student friends in the Northwestern University who are being urged to pay $4.00 for A. Wilford Hall's "Secret." I should like to send them a few copies, and should also like to have a few copies to use among our own students. WINFIELD S. HALL, M. D.,
Prof. of Biology, and College Physician.
Haverford College, Pa., Nov. 6.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Honey market quiet. We have disposed of nearly all of our comb honey, but had to reduce prices somewhat in order to meet competition. Extracted unchanged. Supplies running down, and we are in the market for low dark grades. *Beeswax*, 26@28c. Demand moderate. New supplies will come in from the West Indies in about a month. F. G. STROHMEYER.
Nov. 9. New York.

CHICAGO.—*Honey.*—Comb honey is selling well at 15@16c for the best grades. Nearly all late arrivals have come in good order. Dark is slow of sale, with exception of dark extracted, which sells at 6@6½c, and white at 7@8c, according to quality and style of package. *Beeswax*, 27@28c.
R. A. BURNETT,
Nov. 7. 161 S. Water St., Chicago, Ill.

CINCINNATI.—*Honey.*—Demand for honey is very slow for this time of the year, from manufacturers and consumers. Supply is good of all kinds except, perhaps, strictly choice comb honey. Extracted honey brings 6@8c on arrival. Choice comb honey, 12@16c in a jobbing way. There is a fair demand for beeswax, with a good supply. It brings 23@25c on arrival for good to choice yellow.
CHAS. F. MUTH & SON,
Nov. 7. Cincinnati, O.

KANSAS CITY.—*Honey.*—Demand for comb good, supply large. We quote 1-lb. sections, white, 15@16; 1-lb. dark, 12c; extracted, white, 7@7½; dark, 5@6½. *Beeswax*, none on the market.
HAMBLIN & BEARSS,
Nov. 11. 514 Walnut St., Kansas City, Mo.

NEW YORK.—*Honey.*—Our market is quiet. We quote: Fancy white, 1 lb., 14@15c; 2 lbs., 12; off grades, 1 lb., 12@13; 2 lbs., 10@11; buckwheat, 1-lb., 10@11; 2 lbs., 9c; extracted, white clover, basswood, California, 6¾@7c; orange bloom, 7@7½; Southern, 65@70c per gal. *Beeswax*, 26@27.
HILDRETH BROS. & SEGELKEN,
Nov. 11. New York.

CHICAGO.—*Honey.*—Good demand for fancy white honey in 1-lb. sections at 16c. Other grades white, 14@15. Extracted honey selling slow, owing to warm weather. Quote selling 6½@7½. *Beeswax*, light supply, good demand at 26@27.
S. T. FISH & CO.,
Nov. 5. 189 So. Water St., Chicago, Ill.

DETROIT.—*Honey*—Comb honey in fair demand at 12 @ 13 c; supply light. Extracted, 7@8c. *Beeswax* in good supply at 25@26c. M. H. HUNT,
Nov. 9. Bell Branch, Mich.

ST. LOUIS.—*Honey.*—There is little of an encouraging nature to report in regard to the honey market. The trade is very quiet, and prices unchanged.
D. G. TUTT GRO. CO.,
Nov. 9. St. Louis, Mo.

FOR SALE.—Extracted honey, basswood, clover, mesquite, alfalfa, sage, and other varieties. Lowest prices. Correspond with us. 22-2db
S. T. FISH & CO., 189 So. Water St., Chicago, Ill.

I am prepared to furnish pure extracted honey in 60-lb. tin cans. New cases and cans; graded goods. Carloads a specialty. Address
11tfdb E. LOVETT, San Diego, Cal.

FOR SALE.—6000 lbs. extracted honey, in 60-lb. cans.
C. H. STORDOCK, Durand, Winnebago Co., Ill.

WANTED.—10,000 lbs. bright white comb honey.
B. WALKER, Capac, Mich., or Glen Haven, Wis.

FOR SALE.—1000 lbs. of buckwheat comb honey.
20d D. F. LASHIER, Hooper, Broome Co., N. Y.

FOR SALE.—Four bbls. of basswood and 2 of alsike honey. It is in full 32-gallon barrels. I will send sample, and take $30 per barrel on track, or $32 delivered, or 8c per lb. H. H. OVERMYER, Lindsey, O.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED—To exchange wall paper, from 5c a roll and up, for honey. J. S. SCOVEN,
12tfdb Kokomo, Ind.

WANTED.—A good Christian housekeeper without incumbrance, to keep house for a family of three adult persons. 22-23d
J. L. CLARK, Apalachicola, Franklin Co., Fla.

WANTED.—To exchange bee supplies for extracted honey. 22-23d
J. M. KINZIE, Rochester, Oakland Co., Mich.

WANTED.—To exchange a good paying job for some of your spare time this winter; also a Goodspeed & Wyman gauge lathe, for a pony planer, or "Our Domestic" clothes-dryer (see page 800, Oct. 15), for extracted honey.
D. S. HALL, Lower Cabot, Vt.

WANTED.—To exchange 10-inch Root fdn. mill, new queen-cages, drone-traps, etc., for display and job type. HOME, St. Petersburg, Fla.

WANTED.—To exchange queens, supplies, or cash, for full colonies of bees. Write, giving full particulars and lowest cash price f. o. b.
E. L. PRATT, Beverly, Mass.

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STRAY STRAWS

FROM DR. C. C. MILLER.

CHICAGO CONVENTION Nov. 19, 20.

A TWIN DOVETAILED HIVE is mentioned in *B. B. J.*

IF YOU WINTER in the cellar, try to get your bees in dry, and before they are frozen.

THE WAX-EXTRACTOR that S. F. Trego (*A. B. J.*) uses to melt old combs is simply an ordinary queen-nursery 18x18x10 inside.

SEVERAL QUEENS might be kept in one hive, Henry Alley thinks, if the points of their stings were clipped. Mightn't some of the workers need clipping?

HONEY-WATER, from which to make good strong vinegar, should be strong enough so that an egg floating in it will just show itself at the top.—*Dadant* in *Review*.

"WHEN THE BEES commence to drive the drones out of the hive at the close of the early honey-harvest, then cut out all the drone comb, and the bees will replace it with worker comb."—*H. Alley*.

A LAWSUIT occurred lately in England, in which a bee-keeper sued another man on whose premises a swarm alighted, and were burned by the owner of the premises. The bee-keeper beat.

A REPORT says that the D. A. Jones Co. has gone into liquidation. Sorry, but it may be a blessing in disguise. The *C. B. J.* hasn't failed, anyhow. The last number is an improvement—more Jones in it.

BEAUTIFUL FALL weather, and it seems as if bees might enjoy staying outdoors; but they don't fly any, and the thermometer goes down below 30° at night, so I suspect if they are to be taken into the cellar, the sooner the better.

MRS. HARRISON, in *Prairie Farmer*, says that the honey-bee is the only agent in securing perfect fertilization of apple-blossoms. That's an important item, if true; and it doesn't come from a person given to wild statements. I dare you to give us the proof, Lucinda.

THE *Review* is raising the question whether each number shall continue to discuss a special topic, said topics having been pretty well thrashed over. The *Review* has been so successful in this line that it's a pity to have any change made.

EDITOR HUTCHINSON objects to a record-book because it gets soiled, and because a pencil dangles from it with a string. Now look here, W. Z. Don't you get to being a dude that can't stand a little propolis. Of course, my book is all daubed with glue from one end to the other, and so are my hands; but I shan't give up using either on that account.

FRIEND ROOT, you say, page 836, "If you do not know how to put a pair of shears in nice cutting order, you ought to be ashamed of yourself." Well, I don't know, and of course I'm ashamed, but you ought to be ashamed that you didn't tell how, when you were talking about it. It's not too late now.

THE *C. B. J.* very properly disapproves the suggestion of the *B. B. J.*, that honey from foulbroody hives may be used for household purposes. "Supposing it is used on the table, and the water that the dishes were washed in thrown out in the yard, the bees might get it, and carry it back to the hives."

DADANT & SON say in *Review*, that, to get all the wax out of our old brood-combs, they should be mashed up fine when cold and brittle, and thoroughly soaked in water before melting. The breaking prevents the wax from lodging in the cells, and soaking full of water prevents the melted wax from soaking into the debris. That's bright. I move a vote of thanks to the Frenchmen.

"FRUIT is not injured by bees, because a bee has no biter, but only a slender proboscis with which she sucks her food." That's an argument I've seen used several times, but I don't believe it's wise to use such an argument, for the simple reason that it's not true. Bees have a "biter," as every bee-keeper knows who has seen them gnawing quilts, and even pine wood when the hive entrance is too small.

HERE'S PROOF that bees injure fruit. G. W. Camp says in Hanford *Sentinel*: "Mr. Oliver Smith informed me that the bees carried off a tray of raisins per day from his vineyard." He did not say whether they brought back the trays or not; but two of his neighbors told me that they saw the road near his place covered with bees carrying off his raisins. The bees were walking on their hind legs, and each one had a raisin between its fore claws.

SYRUP of granulated sugar shows more determination to granulate with me this fall than ever before, and others make the same complaint. Heddon says, in *Review*, "I find the granulated sugar much different from what it used to be *once*. Then the regulation amount of acid would hold it every time; *now* hardly any of the time." I wonder if we ought not to have a special brand of sugar for bee-keepers, something as the *B. B. J.* furnishes its patrons.

CUTTING TIN is one of the things that, as a bee-keeper, I often want to do, but sometimes have done it with a hammer because I couldn't wait to go to a tin-shop and didn't want to spoil my wife's shears. I thought I could hardly afford to pay a dollar or two for a pair of tinners' snips; but since friend Root offers them for a quarter I've ordered a pair, and will give up cutting tin with a hammer. I wonder if he couldn't sell $40 squaring shears for about a dollar!

A SWARM of bees is reported as settling on a man's chin; and the *C. B. J.*, commenting on it, says, "It is evident that the queen lighted on the man's chin, and the bees settled around her, same as they would on an ordinary limb." Hasn't brother Jones been caught napping for once? Do the bees follow the queen in settling, any more than they do in leaving the hive? Bees often settle on a limb when the clipped queen is not with them at all.

CYPRUS; BEES AND BEE-KEEPING.

CONTINUED FROM LAST ISSUE.

The way led us through badly paved and narrow streets until at length we arrived at the house, which was in a miserable condition. Through a low gateway he led us to his garden where a profusion of lemon-trees, orange-trees, pomegranates, and others were planted in a disorderly way. In the midst of the garden he had arranged his hives in a pyramidal shape above each other, with stone slabs closing up both ends of the two to three foot cylinders. A big entrance-hole (big enough to let the death-head moths and hornets fall upon unprotected hives) was in the lower part of the slab. The bees were working actively on cucumber, vegetable marrow, and other flowers of the *cucurbitaceæ*, especially the "squirting cucumber" (*Ecballium elaterium*), which yields bitter honey. This plant grows wild all over the East, but seems to prefer ruined places. Ashes and crumbled building material seem to be just the right thing to make them thrive. The plant very much resembles the cucumber at a distance, with its small yellow flowers; but coming nearer you find the leaves very prickly, much rougher than garden cucumbers, and the fruit a tiny cucumber growing at an angle of 45 degrees on an upright stalk. When we boys used to run about the ruins of Zion and Jerusalem we used to have great fun touching one of the ripe fruits, and off they go on the next person, sending out the juice and seeds right into the face or some part near the direction the fruit points. This is one of Nature's curious ways of propagating its kind by sending off the seed to a great distance. The cactus was also yielding some honey; but as too few hedges grow around Larnaca, and the cactus yields honey very sparingly, this source is equally a poor one. Thistles also, of the carduus tribe, grow round the town; and the best of all honey-plants for summer was just beginning to come into bloom—the thyme—of which we met four donkey-loads being brought to town from the mountains, for the oven. I felt very fidgety about it, although not living in the place; still, in Palestine they are doing the same thing, and robbing bees of their pasturage in the near future. Plenty of carob-trees grow all over Cyprus, and these carobs form an important article of export, while the flowers yield honey of a dark brown color. In places where cotton and hemp are cultivated, the bees also get a chance to gather some surplus; but cultivation or agriculture is carried on in the most primitive way. The island having been chosen as an abode for the gods by the ancients, Jupiter named the mountain Olympus, and

> Sweet Venus, born of ocean's creamy foam,
> Chooses the sea-kissed Paphos as her home.

In fact, a temple dedicated to Venus was dug up near Paphos, and is supposed by archæologists to be one of the oldest temples in the world —at least of the *Greek* world.

> Old Neptune calls up from their ocean bed
> His favorite Nereids to the mountain's head;
> Shows them the sacred land, and bids each say
> Where on the thirsty soil her streams shall play.

But the beauty and fruitfulness of this island have gone, partly by the carelessness of its inhabitants, by the past government, and the teeth of 250,000 goats roaming about the island. The British government has done a good deal to make the island in some distant future what it was

> When Ceres, bounteous giver of the store,
> With lavish horn gave ever more and more.

But the heavy taxes which the British government levies on the poor inhabitants weigh so much on them that it will take a generation before the island will begin to show, before better methods to cultivate the soil, and manuring, will have come into vogue, so that every farmer will have found the usefulness of the plowman's toil,

> Wresting from the fruitful womb of mother Earth,
> Heaping the garners and dispelling dearth.

Here, as in Malta, I could find no statistics about bees or honey. Although the government levies 2 pence on each hive, nothing could be found out positively. Only approximately could we find a few numbers.

Bee-keepers here depend on wild honey-plants. No clover or such plants grow here. As we have very long and dry summers, the scattering of honey-plant seeds would avail little or nothing on hard, uncultivated, sun-scorched grounds. And, again, neither Cypriote nor Syrian nor Palestinian would trouble himself or move a finger in such work. Cyprus would yield just as nice and as much honey if some intelligent bee-keeper would go ahead and put up his apiary in such places as afford pasture enough; but, to be sure, I would not change another locality to live among a degraded race, such as the Cyprians, so long as there are a good deal better places to live in.

Going round the town, a candle-manufacturer was busy manufacturing pure wax candles (mixed with 50 per cent of ceresin) for the churches, with which the island is well provided, belonging mostly to the Greek orthodox. The man had a big kettle on the fire, in which he put his wax to melt. A sieve, simply put inside the fluid mass, kept all filth out; and with a ladle he was taking out hot wax and pouring it over foot-long cotton threads hanging over the kettle by hundreds. As soon as the wax was cooled, another ladleful was poured over, till every thread had received some. The first was again cooled enough, and patiently he slowly went over his lot, every time thickening the candles. He had some weighing several pounds, while the greater part weigh 12 or more to a pound. The beautiful yellow candles go fast into the churches as offerings. For sick persons, or any other vow, candles are offered. The whole island may possess between 10,000 and 30,000 bee-hives, which rise and fall in number according to the seasons, and these average about 3 lbs. of honey and ¼ lb. of wax per hive, which is almost all sold on the island itself. Government taxes are 2 pence a hive.

As in all other Mediterranean countries, the bees swarm out in April and May, and drones are killed soon after. The honey is taken after the 24th of June (equal to our 7th of July), St. John's day. Taken before this the honey must taste bitter—not because it is mixed with the bitter flower of the squirting cucumber, but because St. John's blessing must fully come down on the hives and take away every bitterness! The honey is cut up into small chunks, and put into baskets away from robbers, to allow the honey to drip out. The wax is melted

in a kettle and in a sack, and is squeezed out with the simplest machinery possible. Mr. Derwishian tried another day to open his nuclei; but after having got the first sting on his forehead in his life, he put on a veil and took me to his "lamblike" Cyprians, and gave them a few tablespoonfuls of syrup to quiet them down; but even this sweet inducement would not do. They went for us, all for the sake of Louis G.'s rough handling three days ago. I could hardly look at them, and we decided to have a turn about the town, but we were soon done. Mr. D. took me to silkworm raisers. He indulges in this branch, and believes he gets a better living from this than by buying bee-fixtures from England and comb-foundation machines from A. I. Root, on which he got along nicely making foundation, but ultimately he found it to be like the friend and bee-keeper I met last year in Malta, "a nice thing to put his money in, and have the pleasure of raising bees." He was told, years ago, of 20 to 50 lbs. average surplus per hive, but believes he was humbugged. He is almost *too* cautious, suspicious, and mistrusting of his fellow-creatures. What would he say if he could read reports like friend Osborn's from Cuba, or friend King's from Phœnix, Arizona? I wonder, too, why American bee-keepers have not established themselves long before in such a paradise. Why! we over here have none of the advantages of Arizona nor what Mr. King calls Cuba's disadvantages, excepting the great heat. With us the thermometer ranges only from 20° to 33° Celsius in the summer months. But here, besides the duty on bees and honey, the poor help we have to put up with, and the poor market which we have to seek in Europe and Africa, we have no forests to give us shade, but plenty of unhealthy districts. The grip, malaria, intermittent fevers, etc., have been hard on me for the past two years, and yet I have found time to work bees and make them pay; and I freely indorse Dr. C. C. Miller's answer to question 192, Sept. 1 GLEANINGS, concerning health. I think I should not have stood all these; but outdoor occupation, and a trip over the sea once in a while, have kept me up.

Cyprus being a little out of the way, steamers only occasionally touch here; and having no time to spare, and still no steamer here, I got into a sailing-vessel about to leave for Syria; but the wind being calm we lay in the road till night. After 24 hours of slow sailing we were still in sight of Mt. Tröodos, and could dream of "the beautiful Cyprus," and think

> What dreams of Old-World tales flit o'er thy brow,
> O Tröodos, in thy calm rest to-day?
> Vain visions of the future of the isle thou guardest
> in thy lofty majesty?

But next morning, 36 hours after we left, our vessel was being idly thrown about by the waves, without proceeding, from morning till night. The loose masts were squeaking as if to tease us and try our patience. The next morning a fine breeze filled the sails and speedily drove us forward. Just before night we could distinguish, many miles away, Mt. Lebanon.

I close my article on Cyprus with the words of an Englishman who says:

> And now that all the ancient gods are flown,
> Do ye who've made the island all your own
> Bless with your ever civilizing care
> The woful wreck the Turk has left you there!

How glad I was to leave the poor little vessel, in which my "first-class berth" was bare planks, after having been tossed about three days and three nights! I fancied the town of Beyrouth could not stand still.

PH. J. BALDENSPERGER.

Jaffa, Syria, Oct. 1.

HORIZONTAL WIRING.

IT WORKS PERFECTLY; HEAVY VS. LIGHT BROOD FOUNDATION.

Mr. Editor:—As Dr. Miller is desirous of having some one tell him of a more easy way of wiring frames than that described by him on pages 809 and 810, Oct. 15th GLEANINGS, I will give my plan, which I feel sure is both easier and better.

I have 500 or 600 combs, nearly all perfect, wired as follows with four horizontal wires: I make four holes in the middle of each end-bar, at proper distances apart. The upper wire should be about an inch below the top-bar. I use a machine of my own construction, operated on the principle of a tobacco-knife, with a lever. A pressure of the handle (lever), and the four holes are made at once, all in line in the center of the upright. This must, of course, be done before the frames are nailed up. Now nail the frames together. Nail two pieces, each ⅜x1x3 inches, on your workbench, at a distance so that the *ends*, which should point toward each other (thus —— ——), are ⅛ or $\frac{3}{16}$ inch nearer than the outside length of your frame. Now spring the end-bars in so the frame will just slip down between the ends of the blocks, when the frame will be held firmly, having the frame so adjusted that the blocks press exactly in the middle. To secure this, nail another piece ⅜ x 1 x the length of the frame, at the right point, for the bottom-bar to rest against, to hold the frame square while wiring. Now you are ready to commence wiring.

Drive in, partly, two ⅜ tacks in one end-bar, one near the top hole, and the other near the bottom hole, both in the edge of the bar. Commence by putting the wire in through the bottom hole first, then across the frame and through the lower hole in the other end-bar; now back; and back and forth again; now wind around the tack near the top-bar, and drive it home. Now spring the frame between the blocks and draw the wire *all it will bear*, rubbing the wire with the thumb and finger of the left hand to take out the little kinks while drawing with the right; wind around the lower tack, and drive it home and cut off the wire; pull out the frame, and it is wired in the best possible manner. You can almost play a tune on the wires. The spring in the end-bars will keep the wires taut.

I use foundation about 5 square feet to the pound; leave ¼ inch between the bottom-bar and lower edge of the foundation to allow for stretching; place in an upper story, and the bees will fill the frame every time. If in the brood-chamber, they may leave a space between the lower edge of the comb and the bottom-bar. I have never had any trouble with the foundation bagging except when there was not enough space left for stretching, when it will bag out between the lower wire and the bottom-bar. The wires will stretch and sag as much as the foundation.

THOMAS NICHOLS.

Dixie, W. Va., Oct. 26.

[We could not understand why you did not have bulged combs if you drew your wires taut, until we came to the sentence where you said you use foundation *5 feet to the pound*. With such heavy sheets almost any wiring will work; but the fact is, such foundation is rather too expensive, especially if sheets from 8 to 9 feet to the pound will work just as well and give as good combs, providing that the horizontal wires are not drawn taut or just tight enough to take up the slack. When they are stretched, they are not as strong; and, besides, they will of necessity bow in the end-bars; and, worse than all,

many bee-keepers will have "bulged comb." We have before explained that we have wired horizontally, using foundation 12 feet to the pound. As the wires were not drawn tight, there was no bulging; but it is impracticable to roll out on the mill foundation so thin as this, in large sheets. We find from 8 to 9 feet is about as thin as we can work it on the average. Foundation from four to five feet to the pound —that is, "heavy brood"—costs nearly twice as much as that 9 feet to the pound. In these days of poor and uncertain honey seasons, close competition with California honey and other sweets, the bee-keeper needs every cent he can save, and why not in foundation? For unwired frames it is advisable to use heavy foundation; but it is apparent that this is rather poor economy when the wiring costs so little.]

A GOOD REPORT FROM VERMONT.

SUCCESSFUL WINTERING; BEE-ESCAPES, ETC.

My experience in honey-producing is rather limited, as, previous to this season, it consisted principally of looking on while my brother handled the bees. But last spring he was suddenly called to Michigan, so he left his apiaries in my charge, with many a piece of good advice and warning injunction. As the bees last fall were well supplied with good honey, and were well protected in the chaff hive, they wintered finely, and at the opening of the season there were 84 colonies in two yards—63 in the home yard, run for comb honey, and 21 in an out-apiary run for extracting. All the spring manipulation necessary was to remove the burlap and put on a board, at the same time seeing that they had a queen and plenty of stores.

The little feeding that was necessary was done by combs of honey saved from last year for that purpose. This has always been my brother's method of feeding.

We use a hive similar to the Bristol, containing 10 Langstroth frames; and by the first of June they were packed with bees. They got a pretty good start on fruit-bloom and raspberries; and as soon as white clover opened, the sections were put on in the home yard, and tiering up was practiced, putting the empty super beneath. In the out-apiary, where extracted honey was produced, large top stories were used with a queen-excluder beneath. Not a pound of honey was extracted from the brood-chamber. By the first of August I found time to look around and count up; and I found by doing so that the home yard had increased from 63 to 100, and I had about 5500 lbs. of fine comb honey—an average of 87 lbs. per colony, and an increase of over half the original number. In the out-apiary I had increased from 21 to 31, and taken 2500 lbs. of extracted honey, or an average of 119 lbs. per colony, and an increase of one-half the original number. There were two imported Carniolan queens in the yard, and their bees swarmed early and often, but did good work.

My brother used 15 of the horizontal cone bee-escapes last year, and this year I made 15 more, and used them and the Porter exclusively in taking off both comb and extracted honey. I prefer the Porter; but the cone escapes as I make them do very good work, and cost only about 3 cents each for the wire cloth.

I had a hive on scales during the honey-flow. June 12 a new swarm from the catcher was hived on full sheets of foundation, such as we always use, with sections and foundation for comb honey on top. July 25th they had gained 110 lbs. The season began on white clover about June 1, and lasted until July 12, or until basswood was in bloom. The best daily yield from white clover was June 25th, and was 7 lbs. The best daily yield from basswood was July 22d, 6½ lbs. The best yield for five consecutive days was 5 lbs. per day from the 10th to the 15th of June. The poorest yield for 5 consecutive days was from July 1st to the 5th, when they neither gained nor lost, which was caused by rainy weather. The average daily yield from June 12th to July 25th was a trifle over 2½ lbs. per day. Counting the daily gains, we have 140 lbs.; and by subtracting 110 lbs., the difference in weight June 12th and July 25th, from the sum of the daily gains, we have 30 lbs. as the total evaporation, or nearly ¾ of a pound per day. Of course, the item of brood comes in here, but I have not estimated its value.

Mr. Root, I am glad to see you recommending wide thick top-bars. Ours are 1x⅜; and when the space above is correct, and the frames don't sag, there are few brace-combs and fewer burr-combs. For this locality my brother always did (and I think I prefer) a ten-frame hive, for we never fed but very little, while others with smaller hives were feeding all about us, and not producing larger averages. We use for winter packing a crate with cloth bottom. These are stored away in summer with the chaff in them, and are always dry and clean.

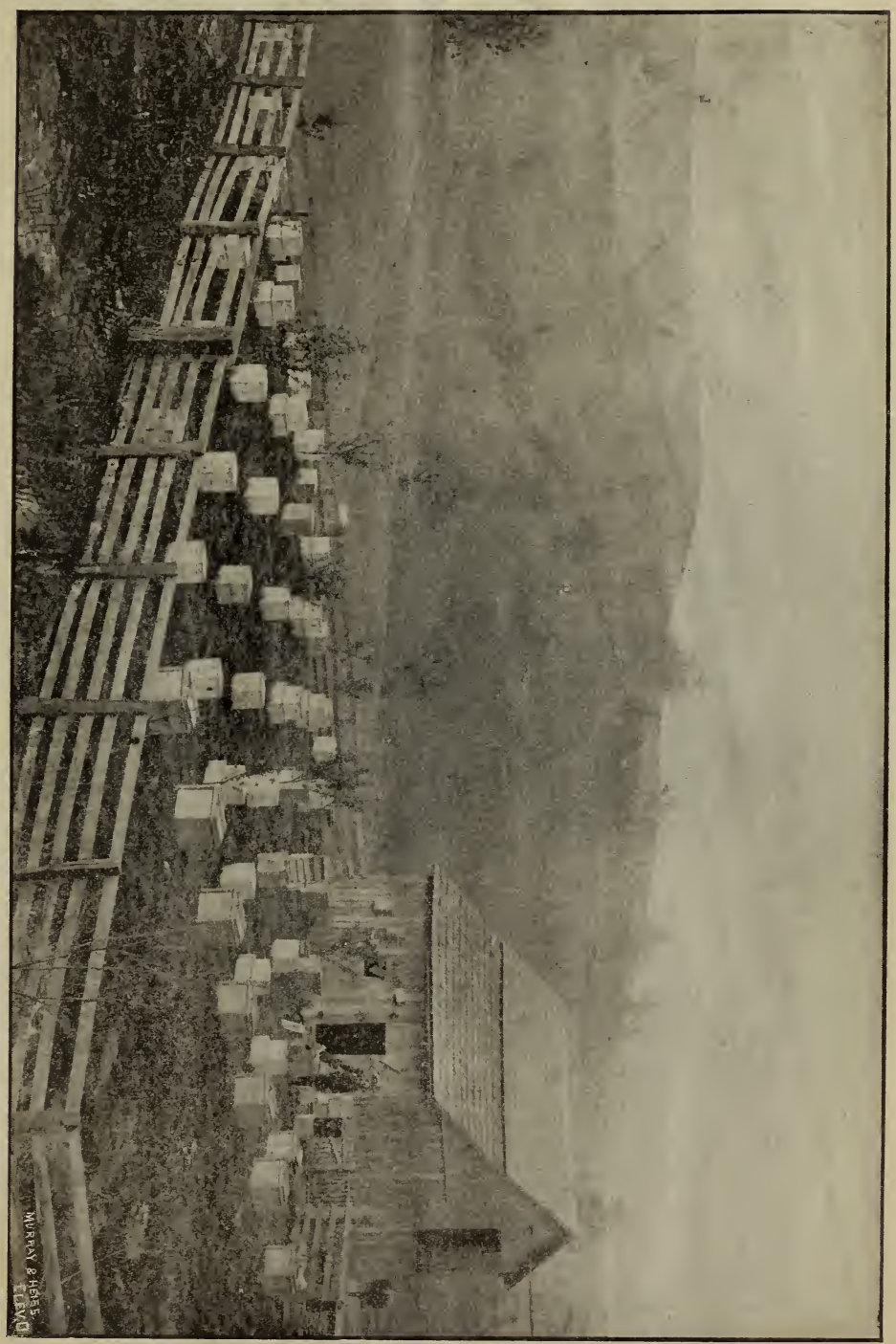
Should I undertake to tell *all* I have learned this year about bees you would have to get out an extra copy of GLEANINGS; but this I will add, that he who begins bee-keeping thinking (as some do) that the bees work for nothing and board themselves, and that it is all profit and no expense, all play and no work, will, in a very short time, find that he must work with both mind and muscle; and he who becomes discouraged at the drawbacks does not deserve the reward. W. G. LARRABEE.

Larrabee's Point, Vt., Oct. 23.

THE UPS AND DOWNS OF AN A B C SCHOLAR.

APIARY OF SYLVESTER HILLARD.

Mr. Root:—I send you a view of my apiary: and if it is worthy of space in GLEANINGS I should like to see it. Farming was my occupation until 1887. After a long-continued sickness I decided to start a small apiary. In the spring of 1888 I purchased 25 colonies of bees of Mr. A. Wilkins, paying $150 for them. I also purchased about $100 worth of supplies of A. I. Root, and thought I would start a small supply-trade. The season of 1888 being a short one, I got 800 lbs. of box honey in three weeks. This was sold at 14 cts. a lb., and I became very enthusiastic in the line of bee culture, reading all the bee-literature I could get hold of. I decided to increase my stock to 50 colonies by artificial swarming. This was soon done. The wintering problem was my next stumbling-block. I finally decided to put up a building for the purpose. This was done, and the bees were set in for winter. They were put away about the 10th of November, and remained until some time in January, when they were set out for a fly, and then put back for the rest of the winter. Along about the last of March I found that the bees were dying by being confined too long. As soon as the weather was favorable they were set out on their summer stands. The result was a backward spring, and the bees died off till but a few were left. Being fully determined to have more bees I purchased 25 three-frame nuclei of Dan White, of New London, O. The season of 1889 being a favorable one, the result was, after selling quite a number of colonies I increased my stock to 43. These I wintered on their summer



APIARY OF SYLVESTER HILLIARD, QUAKER CITY, OHIO.

stands, losing only about one per cent. During this time my trade had increased to more than double the previous year.

SYLVESTER HILLARD.

Quaker City, O., Aug. 7.

HALF-STORY SUPERS FOR EXTRACTED HONEY.

A VALUABLE PAPER BY F. A. GEMMILL, VICE-PRESIDENT ONTARIO BEE-KEEPERS' ASSOCIATION.

At the request of a number of Canadian bee-keepers, we publish a paper read by F. A. Gemmill, at a meeting of the Brant Bee-keepers' Association, on the subject as above. Our space is so crowded that we are unable to publish, as a general thing, papers read at conventions; but as this one is so valuable, we are glad to give it space, if for no other reason than that we have been requested to do so.

As promised, I will attempt a short article on the advantages of using a super or half-story (in other words, a case containing drawn combs half the depth of those used in the brood-chamber) for the production of No. 1 extracted honey, and as an adjutant or assistant in securing a first-class crop of comb honey, such as no one need be ashamed to place on any market.

I know there are objections to a practical apiarist having different sizes and styles of hives and combs in his apiary; still, experience teaches me, at least, that the advantages outnumber the disadvantages, especially if the outside dimensions of the hives and supers are alike.

First, I would ask, why object to a half-story containing combs such as described, any more than the use of supers containing sections for comb honey, so long as the complete tiering up of all is not interfered with? Second, Why should bees be allowed to cling to the brood-chamber in the fore part of the season, depositing honey therein, only to crowd out the space which should be occupied by the queen? Simply because there is not sufficient inducement to entice them to deposit it above.

Now, we all know the giving of a full story in most localities at the time when more room is needed, is rather more space than is necessary, and consumes too much of the heat required in the brood-chamber, unless the hives are chaff-packed; and, again, the giving of a super containing sections, especially if they are not nearly all drawn out the previous season, does not always succeed in gaining the desired end. There is, however, no trouble if a half-story of drawn combs is first given, as such can compose a part of the brood-chamber proper, sufficiently long to secure the point sought for. The market requiring choice grades of honey is yearly becoming more marked; particularly is this the case in regard to variety and quality; therefore I venture the opinion that, while honey may always be honey in the proper sense of that word, still all kinds of this article are not alike to a consumer any more than all kinds of butter, or, in fact, any delicacy usually found for sale, and no one knows this better than bee-keepers generally. Now, in order to secure the different varieties by themselves as nearly as possible, no other system offers better facilities than the half-story system. There are localities and hives where it is not only advisable but necessary to extract from brood-combs in order to secure the honey of poor quality and flavor from being deposited in sections (a place, by the way, in which the very finest honey only should be stored) or placed in combs of full depth, when added above the brood-chamber, thus completely destroying the appearance and flavor of a large quantity of what ought to have been a first-class article of clover honey; and while my own locality does not differ materially from the one quoted, still my mode of procedure is somewhat different; not, however, that it is by any means new, but because I am not an advocate of extracting from combs containing brood, especially unsealed larvæ, as I believe brood in brood-combs and honey in store combs is the proper place for both; in other words, the queen in one apartment, and the honey in another, at all times, except, of course, during winter. And right here I trust you will pardon the digression when I state that incalculable damage is done yearly from such work, independent of the risk of encouraging, if not propagating, the great curse of our pursuit; viz., foul brood.

But, to resume. The method adopted by myself is as follows: About the first of June, or a little earlier in some instances, as soon as the queen requires more room (I use the eight-frame Langstroth and New Heddon hives), the hive is opened, and the face of every capped cell of honey is bruised by simply drawing a knife flatwise across the comb, first driving the bees away with smoke, or, if necessary, shaking them from the combs altogether, when a half-story of drawn combs, as described, is placed over the brood-chamber, and the cover to the hive replaced for two or three days, when it is again opened and a queen-excluding honey-board placed between the two, as egg-depositing in supers is not encouraged, although the presence of a few eggs will do no harm at this juncture, providing the bees are not allowed to build queen-cells and a young queen reared and destroy the one below. It is, of course, presumed when the excluder is inserted, that the old queen is in the lower portion of the hive. Reversible frames are said to accomplish this end, if the reversing is done at the proper time, without the necessity of bruising the face of the comb; but not having had an extended experience with such I can give no decided opinion, although I do not see why such a course would not work. This, however, I do know: the dividing of the Heddon hive, viz., placing the top half below, and the bottom part above, will effect the same purpose.

There will now be no difficulty in securing the honey in its proper place, after it has been carried upstairs, from this time henceforth. You will please observe there is no difference up to this point, whether or not one is working for comb or extracted honey, as that can be determined afterward, as the strength of the colony and strain or race of the bees are factors that must or ought to be considered, especially in producing the former article.

We will suppose extracted honey is desired. If so, all that is required is to raise up the first half-story or super containing the dark honey stored from the brood-chamber, and any that may have accumulated before the flow from clover has commenced, and add a second, which will, of course, now be filled with clover, while a third or fourth may contain basswood or thistle, as the case may be, and yet all can be thoroughly ripened on the hive, as it should be, for many reasons too numerous to mention here. If, however, for want of sufficient combs you prefer extracting the different kinds before thoroughly ripened on the hives, it is an easy matter to place one of the several bee-escape boards (preferably the Porter spring contrivance, which, by the way, is only beginning to be half appreciated as it ought to be) under each top story, and free the supers from bees in a few hours. They can now be extracted and again returned to the hives. This way of managing to one who has never before tried the escape system, will, I fancy, become permanent with them, as the pleasure of removing shallow supers, containing nothing but honey, has only to be tried once to be appreciated.

In the event of your being a producer of comb honey, all that is necessary is to tier up as for the extracted article. With this advantage, only one case of sections need be given any colony, unless considered advisable to do so, and this not given until the honey is coming in rapidly, and the bees ready and willing to fill and seal them in short order, and thus present you with an article as white as snow, instead of travel-stained, propolized sections, sufficient to disgust any one from purchasing, even at a low figure. Again, I find I can get more and better comb honey with fewer unfilled sections than by any other process; in fact, it is not at all desirable to carry over any partly drawn sections from the previous year, as, in my own experience, they are not filled and sealed any sooner than a new case of sections containing full sheets of thin foundation, when added under a half-story as described.

The only valid excuse against using these half-stories is the expense and the time consumed in handling the double number of frames. As to the first reason, I am free to admit the cost is a trifle greater; still, if protected by outside cases until

clover commences to bloom, the material comprising them need not be any thicker than ⅝-inch stuff. As to the second reason, I find it easier and more expeditious to uncap and extract two sets of half-depth frames than one of the full size, as one sweep of the knife cleans the face of every comb in an instant; and if your frames are wired as they ought to be, even in half-stories, notwithstanding what others may say to the contrary, and your extractor is capable of taking a full set of eight frames, or four of the large ones, as with myself, no time need be uselessly sacrificed.

Now, friends, try them. There is, however, no necessity of going into the experiment in a wholesale manner; a few at first, and more afterward if you need them, will be a wise plan to follow. I know they are gaining ground yearly, and this fact alone should be a guarantee that they are not a useless appendage in the apiary; and, as I am about concluding, let me add: At all times have plenty of store or surplus combs, no matter of what style or depth, as they are good capital at any time, especially in a poor season like the past, as bees stored in such and did well, while those in sections or on frames of foundation did little or nothing.

Lastly, do not be afraid to put your name on all honey offered for sale, at the same time stating the source from which it is secured, and thus prevent confusion and suspicion. Too much need not be on the label, but it should be in large print and easily understood.

THE TRUTH ABOUT THE SELF-HIVER.

C. H. DIBBERN SUGGESTS AN IMPROVEMENT.

I have read with much interest the article of Mr. West, on page 763, reporting discouragingly as to the success of the Alley hiver. I had intended to report my experience sooner, but have waited to hear from others, and see how they succeeded, before making my report. In 1890, when Mr. Alley brought out his self-hiver, the idea struck me so favorably that I at once sent to him for a sample. In due time the hiver was received; but in studying it a while I concluded it was not just right; at any rate it did not exactly suit me. As I was that year starting an out-apiary, the matter of hiving the swarms was a matter of considerable importance, especially as I found it rather difficult to get suitable help. Another serious difficulty was, the place where the new apiary was located was surrounded by tall trees from which it would be a very difficult matter to get the swarms, even by an expert. To settle the matter, and at the same time give the new hiver a thorough trial, I made up 100 of them after a pattern of my own, though not greatly different from Mr. Alley's. That year the hivers were put on every hive in the new apiary, but swarming proved almost an entire failure, as well as the honey crop, as I had but two swarms issue through them, neither of which hived itself. Fortunately I was at the out-apiary when they swarmed, and had a good chance to see how the bees and queen acted. The bees in both cases soon settled on trees, and the queen ran up and down the perforated zinc in front of the hive in great excitement. The opening and wire cone were on the ends of the hiver and the empty hives were placed by the side of the one expected to swarm. I soon saw that the queen would persistently run up the perforated zinc front, and pay no attention to the wire-cloth tube, through which she was expected to pass. I do not believe she would have passed out of a two-inch hole one time in four, if placed at the end where it was darkened by the tube leading to the empty hive.

This year the hiver had certainly proved a failure, but it had given me a valuable hint. I can agree with friend West, that the hiver does prevent swarming to a great extent. The two swarms out of the 100 hives I had did not issue till the 28th and 30th of June, while the bees at the home apiary, without hivers on, had swarmed for weeks. So I concluded that, as the drones were trapped as fast as hatched, swarming was not only to a great extent prevented but delayed as well.

By comparing the two apiaries I found that about ten per cent of those at the home apiary, without hivers, swarmed, and only two per cent at the out-apiary swarmed with them on. The amount of honey secured was about double as much at the out-apiary. There is not much difference in locations, and so I concluded that putting on the swarmers did not lessen the amount of honey secured, if it did not actually increase it.

While I had not succeeded in hiving a single swarm, so well was I satisfied that the idea was practical that I remodeled the hivers I had, and made 100 more on a new plan for the season of 1891. Now, to give the reader an idea of the new hiver I will try, as best I can without an illustration, to describe it.

THE SELF-HIVER I USED IN 1891.

I use common well-seasoned lath, planed, and make a frame exactly the size of the hive-fronts. The pieces are nailed so as to make a space as wide as the lath, in front of the hive, and covered with the perforated zinc. On the upper piece I place the wire cones, with openings not less than ¾ inch, so drones will not get clogged there. The wood should be painted to prevent warping, and is hooked to the hives by my malleable hooks, which are just the thing.

Now for the empty hive to receive the swarm. I make a similar frame, only it has a one-inch hole bored through the bottom piece, and only one wire cone on the inside. For a bottom to the empty hive I use an escape-board with the front strip removed, to make an entrance for the expected swarm. The empty hive is now placed on top of the super, on the hive expected to swarm, and the two hives connected by a leader, made of lath, and covered with the zinc in the form of an inverted V. This, you see, readily leads the queen, in swarming, past the super, and I have another leader just twice as long in case I want to put on two supers.

JUST WHAT THE HIVERS WILL DO.

This year I decided that I could, with the aid of the hivers, run both apiaries, some seven miles apart, alone. I made my hivers during the winter, and had them all ready as swarming approached. These I placed on the hives, both at home and at the out-apiary as fast as colonies became strong, or showed signs of swarming. I soon had them on all my hives, except a few weak ones, and awaited results. Swarms soon began to issue, and would almost invariably hive themselves all right; but they were very small, as so many of the bees would return to the old stand. I soon found that this was to be the rule, and most of the self-hived swarms would contain only from a pint to a quart. The queen would be there all right, however, and generally enough bees in front of the new hive to show that the bees had swarmed. Of course, such swarms would be useless if left to themselves, and I am not that kind of a bee-keeper. Now, the way I generally managed is about this:

If a swarm issued while I was present I would wait till the bees were about all out, and the queen and drones in front of the new hive, when I would remove the old colony and put the new hive in its place, also giving them the supers. In due time the swarm would return and go into the new hive. Now, in order to make the swarm still larger I would put on a bee-escape board, with an escape in it, as a cover for the

super, and put the old hive, without bottom, on it. I allow the old colony a small entrance of their own. The old hive is left there for seven days, on the Heddon plan, when it is removed to a new stand. During these seven days the bees just hatching are constantly escaping to the new colony; and when the hive is finally removed the homeless bees return directly to a point over their old entrance now occupied by the new swarm, and are peaceably received there. Perhaps when I go to the out-apiary, as I do every three or four days, I find that several hives have swarmed. On one occasion I found seven. Usually the new hives will contain the queen, a good many drones, and a pint or two of workers. Now, as I can not tell just what day they swarmed, and can not always be on hand at just the right day to remove the old colony to a new place, I pursue a little different course. I put the new hive on the old stand, giving it the supers, and brush off about three-fourths of the bees from the combs of the old hive, removing it at once to a new location.

In order to guard against a second swarm I cut out all the queen-cells on my next visit, and drop in a virgin queen from my queen-nursery, which I keep running constantly during swarming time. Of course, this method is varied somewhat, according to circumstances; and one must do some thinking, and use good judgment, to succeed. If you expect a "patent hiver" that you can put on an empty hive, and let the bees do the rest, you will surely be disappointed with any kind of hiver now in sight.

Do I consider the hiver a good thing? Well, I certainly do. While it is not all I could wish, it will enable me to do much more than I could without it. Mr. Manum wrote, last spring, that, with his system, he could manage seven apiaries by removing queens just before swarming. Well, I can't do that, and I should not like to work at that rate, even if I could. With the self-hiver and the bee-escape, and other conveniences, I believe I could run four apiaries of 100 colonies each, the year round, without help.

As to my hiver, or Mr. Alley's, as he has a patent on the principle, I will say that I have none for sale, and am not interested one way or another. I shall pay Mr. Alley for the right to use them, although mine is very different from his; but the principle is the same; and as I wish to be a law-abiding citizen I recognize his rights, as I think all ought to do.

The worst difficulty to be overcome is to keep the drones from getting clogged in the tubes. Now, a live drone will readily pass through a wire cone with a ¼-inch opening; but the bees, in their efforts to remove the dead drones from the hive, will get them fast in the cones, and they become stopped up. To remedy this I use an open wire cloth from which I can make openings ¾ inch. This, I believe, will entirely overcome the difficulty. On one occasion I found two swarms had doubled up, and that time I had a good-sized swarm in the new hive, and the bees covered the fronts of both hives. Mr. Alley says that two or more colonies swarming at once through the hivers will each return to its own hive. I think he is certainly mistaken in this, as they will not do that for me. They will usually all pile into one hive, making a large swarm. In such case I at once divide up the bees to suit me, but I had only one such swarm out of about fifty.

I find it a good plan to keep the hivers on the new swarms for several days, as quite often the bees will try to abscond. I had one colony issue three times after hiving, before they became satisfied. But this is not any worse than where swarms issue and are hived in the old way. The advantage in keeping on the swarmer is, that they can't get away; and why not keep them on till all danger of swarming is over? Of course, the swarmers must be removed from the old hive, to give the young queen a chance to mate.

Mr. Alley may not yet have his hiver perfect, but I am sure he will succeed. The trouble with him is, he tried to make the queen run sidewise and downward, while her motto is "Upward." C. H. DIBBERN.

Milan, Ill., Nov., 1891.

[You have greatly simplified as well as improved the automatic swarmer. It is indeed the natural tendency of bees and queens to crawl upward, and, of course, we ought to take advantage of this characteristic. We shall listen with interest for further reports, and in the meantime we may give our readers an engraving illustrating more exactly Mr. Dibbern's idea.]

RAMBLE NO. 47.

IN MEDINA, OHIO.

From the refined and artistic air of Cleveland we journeyed directly south to Medina, and arrived at this noted town about 6 P. M. As we emerged from the crowd on the depot platform the first person we met was E. R. Root, whose face looked as pleasant and familiar as it did upon our camp of bee-keepers a year ago at Lake George. After a brotherly grasp of hands he led the way across the track, and we were before the establisment with which thousands of bee-keepers are familiar. The building, though very faithfully represented in GLEANINGS, the object itself, when we stand before it, has an individuality about it which a print can not convey. The factory had just shut down for the day, and nearly all of the workmen had departed. There was a small group at the further end of the building; and as we approached we recognized A. I., the head of the concern, and were introduced to Mr. Calvert and others. Brother A. I. met the Rambler with a double handful of those large, ripe, luscious Gandy strawberries. The Rambler

RAMBLER GREETED WITH A HANDFUL OF STRAWBERRIES.

was somewhat "flustrated" by so much coming upon him at once. Public attention, however, was soon directed to another subject. Some one made a remark about a Sunday excursion over the new railroad. It seems that Bro. R. had given the land to the new road with some limitations, etc. Sunday excursions had to ask

Bro. R.'s consent, or did so out of respect; and, just as we bee-keepers would expect, and just as the superintendent of the road said he expected, Bro. Root refused permission. There seemed to be suspicions in the air that the railroad would run the excursion, though, and a large poster on a tree at the other end of the factory gave strong coloring to the suspicion.

SUNDAY EXCURSIONS.

Just then a young man was passing the tree. He was hailed, and asked what the poster meant. The youth was evidently in a hurry, gave a glance, and shouted what sounded to the Rambler like "get there. Eli." and disappeared in the gathering shades of evening. Silence fell upon our group for a minute. A. I. was bound to look into that Sunday-excursion business, and a few rapid steps placed him before the tree. Getting into position with eyeglasses he read, "Band concert at Elyria." He immediately straightened up with an audible "humph!" and sauntered back with his hands in his pockets. He didn't whistle; but a far-away look came to his visage, and he proposed to go to the residence of E. R. and see the baby. The babe was in sweet repose, however, and the Rambler sat down by the hearthstone of E. R., and somehow it was past eleven before we retired. The next morning was devoted to looking over the factory. Every department was busy, and apparently moving with the regularity of clockwork. After a round through the factory the Rambler was turned loose. We had been introduced to Mr. Spafford, and were soon looking over those fine Italian bees with him; and in order to make him as busy as possible, several swarms issued. The fountain pump and wire-cloth swarm-catcher were successfully used, and in a very short time after leaving the hive a swarm would be in a new home ready for business.

Owing to some improvements in the bee-escape line, the house apiary was receiving more attention than usual, and with encouraging signs for its future usefulness. The apiary looks about as it does in print; but the grass was getting the start of the apiarist, and it also seemed that A. I. had forgotten his former hobby of pinching off grapevines, or had left it to some one who hadn't the hobby on. The vines and grass were properly trimmed in time, and this apiary, like all others, has its times of fitness and unfitness.

While we were interested in many things in the mechanical line, we were particularly so in the automatic machine for making the rolls for foundation-mills. It might almost be called an automatic engraver. Its adjustment and operation were to an infinitesimal part of an inch, and punches can be adjusted to make a round or hexagonal cell.

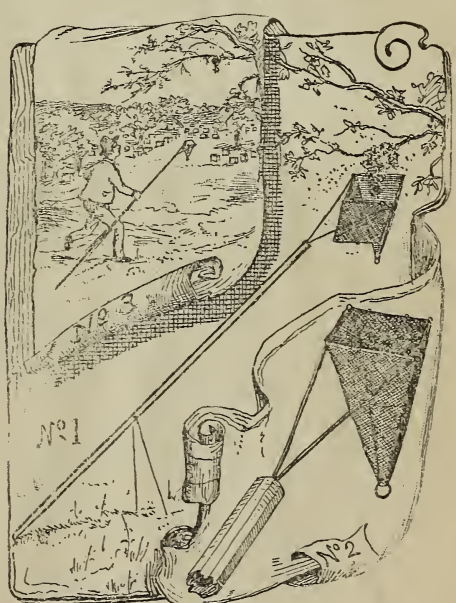
Another machine to facilitate rapid work is the hive-dovetailer, which will automatically dovetail 25 sides at once.

The gallery of Bro. Root's establishment had a great fascination for the Rambler. We got there every chance we could. It was very easy of access, as it was in the basement. It was where the girls made the foundation. Several tons of wax are manufactured into that beautiful foundation with which so many are familiar.

About 11 o'clock (June 26) A. I. found the Rambler and conducted him safely over the barren wastes the new railroad had created, and into the midst of that wonderfully productive but small farm. There were enough of those luscious berries left to give us our fill, and crops of various kinds in such rank growth as to please the lover of thrifty farm crops. Bro. R. pointed with evident pride to his rows of potatoes, and thought he had a little the best in the State.

A horseman and boys were at work in the field, and were kept constantly going in some part of the grounds. From what we saw here it is evident that many men are wasting time and strength by cultivating large areas when smaller ones well cared for would produce as much if not more.

After dinner E. R. drove around with a two-seated canopy-top wagon. E. R. and *we* occupied the front seat; Mrs. Root, Miss Smith, and the baby the rear, with a suspicious-looking



MANUM SWARMER AND HOW IT IS USED.

basket under the seat. Our destination was the Shane yard. From what we had read in a certain bee-journal about E. R.'s driving we expected to just fly over the ground; but we were about two hours going seven miles, and nearer three getting back. The Shane yard is embowered in a thrifty young orchard, and nearly all of the hives are of the new persuasion—dovetailed and Hoffman frames. When

we got ready for business we came to a standstill for the lack of fire—no matches in the crowd. A small boy just then emerged from the tall grass, and was offered a nickel to run to the house, almost a quarter of a mile away, to get some. A nickel would not be accepted. He was a generous boy, and ran for nothing; but when we afterward found a large piece of new comb with honey in it, it was given to the urchin; and from the way he ate it while sitting on the rail fence it was far better than

THE URCHIN, AND THE HONEY THAT WAS BETTER THAN GOLD.

silver or gold. The bees were just booming; hives were being filled, and preparations were being made to swarm; and the examination was made just in time to prevent bad results. This examination was our first experience with the Hoffman frame, and we were surprised to see the ease with which they were handled. The Rambler has handled the Heddon hive for the past three years, and had many times thought that a deeper frame would be more suitable; but after manipulating these frames, we mentally asked the question why, and could get no satisfactory answer. While the Hoffman frame has its merits, and allows the handling of hives to a certain degree, it does not attain to the point secured in the Heddon hive. We hope to have more to say about these hives in the future. While manipulating the bees our Clark smoker-spring gave out; and Ernest (or the Rambler) said, "Oh for a Bingham!" We guess it was Ernest who said so; but we took the smoker in hand, and, with both hands, sent the smoke where wanted.

Every colony was examined; and after our arduous labors we retired to the shade of a tree where the ladies had spread a bountiful repast from that mysterious basket. We all did justice to it while the baby kicked and crowed contentedly on a corner of our blanket.

It was at a late hour that night when we sought our respective couches.

Bro. Root has a complete stock of lumber, and, being determined to keep the lead on sections, 40 carloads of basswood were rolling in from the north. Some of Mr. Root's workmen have been with him for 25 years. Some have one or more fingers off, and all we conversed with seem to be very genial people. We said good-by, and left the busy reality behind, while the vision of it is still with the RAMBLER.

[E. R. R. does not now drive the same horses that used to make such strides over the road. One of 'em, you remember, got stung and broke the thill, and pushed the sharp end into his side, piercing his heart. That ended our record-breaking with horse No. 1. We could not be content, and so we had to have another high-flyer. After this one had run away with us, and cut up several other undesirable capers, well, we—*sold her!* and from that time were cured of the horse hobby. Then we got on to the bicycle hobby, and you know the rest.

When Rambler came, the two big horses were out teaming, so we secured a livery. (Mrs. Root has since ordered E. R. never to get that "slow poke" again, and we never did.) That is why we did not make our old record.

On arriving at the Shane yard we were very much "flustrated" to think we had not thought of matches. After saying so much about general preparation, and *looking ahead*, to have a distinguished bee-keeper find us at an out-yard without a *match* to light a smoker, was mortifying indeed. We thought we had told the boys to take down a whole box, and leave them there for use; but the box could not be found. The next time we went down to the yard, the first thing we put into the wagon was matches—a "hul" box.

As if to add to our further embarrassment, when we got further along and smoker lighted, the staple to the smoker-spring pulled out, as Rambler says; and it so happened, too, that we were on to the crossest hive in the whole apiary. That Bingham smoker? Well, yes, it is better for some emergencies, and one is when a Clark smoker-spring pulls out. This is the second time in our experience that this happened; but we are now at work on a spring that won't behave so badly. Rambler did not see our latest improved smokers; and since he has been here, it has been still further improved, so that the blast is *almost* as dense and killing as that from a Bingham or Quinby.] E. R. R.

PUNIC BEES.

A WORD ABOUT THAT AUTOMATIC SWARMER.

Friend Root:—You must know that we fellows who have the Punic bees have occasion to laugh, and as often, too, as those people who never have seen these bees give their opinion of them. You gave in GLEANINGS of October 15 what you considered pretty strong testimony for the new race of bees. The strong testimony was given by parties who have the Punic bees; but as these parties have this new race of bees for sale, their statements were of little account, as, in order to offset their statements, you gave what *you* considered the other side of the question. The other side was shown in an extract taken from the *British Bee Journal*, and this notwithstanding the fact that the editor of that journal states that he knows nothing about these bees and has not even seen one. Now, friend Root, do you consider that a fair way to give both sides of a question? I have seen these bees, and have tested their qualities in all respects but that of wintering. Having had several months' experience with the Punics, and found them as good as was claimed, what am I expected to say of them? Do my friends expect me to give any thing but truthful statements concerning their qualities?

You say you could see no difference between the Punic and black bees. This is no evidence that the bees you bought are not Punics.

A man came into my apiary a few weeks ago, and, of course, was shown the Punic bees.

"Why," said he, "they look like black bees."

"Do they?" said I, "let's see."

I went and got a black bee, or what you and others call black bees, and compared it with the Punic. He readily saw that the Punic bee

was black, while the common bee was brown in color. Now, our native bees are not black—they are brown. When you have had the Punic bees one season, or long enough to have them fly out and work, you will find that their true color is as black as the ink used to print these words. Not only will you see the difference in color, but in all other characteristics peculiar to the honey-bee.

While speaking of one race of bees being marked like another, let me say that there are hundreds of old bee-keepers who can not tell the difference by their markings between the Italians, Holy-Lands, and Cyprians. Only an expert can distinguish any difference in their color and general markings. Now, does any one pretend to say there are no such bees as Cyprians and Holy-Lands because they are marked so much like the Italians? Why doesn't some one who never saw any of the yellow races get up and say he does not believe there are any such bees? Would not such a person be as consistent, and his evidence as good as that of the editors of the *British Bee Journal* respecting the Punic bees?

Well, friend Root, I can show you one of the best colonies of bees to be found in America. Their hive is so full of bees that it requires 14 L. frames to accommodate them with all the room they actually need. The bees in this colony are as gentle as flies, and their color is as black as the blackest thing you ever saw. This colony has stored 25 more pounds of honey than it needs to winter on, all of which was gathered since September 1st. Very few of the bees in this colony were old enough to fly till the last week in August. These bees I call Punics. The queen came from Africa. I believe this, as I know the importer of these queens, Mr. Hewitt, is honest and fair.

So far as my experience has gone with the new races, I unhesitatingly pronounce the Punics best of all. They seem to possess the most desirable points and the fewest undesirable features of any bees I ever saw. If, after a fair test of this new race they do not maintain their reputation as now established on short acquaintance, then I will cry them down as I did the Cyprians, Holy-Lands, dark Carniolans, and albinos.

THE AUTOMATIC SWARMER.

One of your writers, whose article appeared in a recent issue of GLEANINGS, gave a very unfavorable report of this new device for self-hiving a swarm of bees. Now, I am free to say that the swarmer was not a success in the hands of all who tried them, while in the apiaries of others they were a perfect success. When the unfavorable reports are all in, I will try to so explain matters that all can make the swarmer work successfully. HENRY ALLEY.

Wenham, Mass., Oct. 24.

[Although Mr. Cowan did say he knew nothing of such a race, yet if you will read over his footnote again you will observe that he referred more particularly to bees of that *name;* and yet it is pretty evident that he has a good general knowledge of all the bees from Africa. He describes quite minutely those kept by the Kabyles, bees small and black, and great propolizers. The inference was, that these were the same race as the Punics, and these, Mr. Cowan says, were discarded. Still, these may not be the same bees, and we await with interest the further development of the Punics.

Mr. Alley evidently does not have in his locality the small black bees that we have in Ohio. It is generally understood that there are two kinds of common bees, although they are quite alike in general characteristics. One is described as a large brown bee, and the other as a small black bee. The latter do resemble very much the bees from our select tested Punic. It is too early for us, however, to judge of the general characteristics of the new bees, especially from their general appearance. As described in our editorial, in the issue for Nov. 1st, they seemed to be quiet on the combs, like Italians.

In regard to the automatic swarmers, we have seen only two good reports of their use. Although we do not doubt but they have worked well, as you say, it rather strikes us that Mr. Dibbern has made an improvement. See his article elsewhere, on this subject in this issue.] E. R.

THE HOFFMAN FRAME, ETC.

THEIR POINTS OF MERIT REHEARSED.

I have been taking quite an interest in the discussion pro and con lately, relative to the Hoffman frame. I notice there is quite an interest shown among the bee-keepers in regard to which is the best frame to use. I for one am willing, and not only willing but glad, to put in my testimony in favor of the Hoffman frame, although I have had but two years' experience with it; but I think it far surpasses the old style of hanging frames in more than one way. In the first place we are sure that our frames are spaced evenly through the hive; but with the hanging frame we have to use the forefinger as a spacer; and in pressing one frame up to the other we sometimes crowd the last-placed frame up closer to the other one, and then where is our bee-space gone? But with the Hoffman frame we can put one frame up as tight to the other as possible, and we are still sure of the bee-space being there. Then, too, when we want to move some of our colonies to an out-apiary, or return them home again, we do not have to lose half a day in getting the frames in shape so we can be safe in loading them on to a wagon; for all there is to do is to be sure to take enough entrance screens with us to close the entrances of the colonies we wish to move, and drive two wire nails into the cover to be sure the bees will not get out that way, and then we are ready to put them on to the wagon or in the cars, and feel safe that the bees will not get crushed between the frames, for there is no way for them to get loose unless the hive should get broken open.

Then there is a great advantage in handling them in the apiary. As you can take out as many frames as you like at a time, if you want to lift one of the frames it is a very easy matter; or if you want to lift three or more it is just as easy; so we find that, in manipulation, they are just the frame we want, for we can divide a colony (if we practice this way for increase) without tearing it all to pieces as we would have to in the old-style hanging frames. We can also leave them in a compact cluster. You see, I am in favor of the Hoffman frame.

The next question of importance with me is hives; but I can not make up my mind just what kind of hive I want. I have tried the Simplicity, but I find that they are not quite the hive to winter safely in, so I have now about fifty of the Root chaff hives in my home apiary. This hive seems to be about the one for wintering in; but they are so very large and heavy that it needs two good strong men to handle them; or, if one has a small farm and a good yoke of oxen, he might get along all right; but I think they are just about right for Michigan weather.

I have 55 of the one-story chaff hives, after the M. H. Hunt pattern, which I think are very

good hives for all purposes, although they too are quite heavy to handle; but then, if we wish to combine a summer and winter hive together we must expect to have a heavy hive to handle; so you see we shall have to take the bitter with the sweet.

My bees have not done as well this season as I expected. Although there was a profusion of blossoms they did not seem to yield any honey whatever, and they seemed to gather only enough honey to live on; but when basswood commenced to bloom they just rolled in the honey for five or six days; then there was a little honey brought in from the white clover. All of the bee-keepers around here looked for a good flow of fall honey, but there we are disappointed, for the fall flowers do not secrete any nectar to speak of. The goldenrod does not bloom out as bright this fall as it has in former years; for as soon as it starts to bloom it turns brown and does not come out with the bright golden color. Can you tell what causes this? This year I worked my home apiary for both comb and extracted honey; but next year I shall work for comb honey, for I think there is more real profit in it for the bee-keeper than there is in extracted. GEORGE N. CORNELL.

Northville, Mich., Oct. 1.

THE ADVANTAGES OF CLOSED-END FRAMES IN WINTERING.

HOW BEES BUILD COMBS IN BOX HIVES.

I took GLEANINGS out of the mail this morning, and find Mr. A. N. Draper says, on page 841, "One of the greatest advantages of the closed-end frames you don't seem to appreciate; and that is, in wintering and breeding up in the spring, as the closed-end frames prevent all circulation around the edges of the frames."

On page 317, April 15, Mr. P. H. Elwood says: "Mr. Quinby observed, soon after the introduction of the Langstroth hive, that bees did not winter as well in them as in box hives, on account of the open frame, and he remedied it by making his frames closed-end." "Abbott, late editor of the *British Bee Journal*, says: 'There is nothing more unnatural in hive arrangement than the practice of making or leaving spaces around the frame-ends.' Bees usually close up the space between the combs and frame-ends or side-walls of the hives, as far down as honey extends."

Last May, soon after this last quotation appeared, I took a trip out to Mr. Elijah Inman's place, where he keeps about 30 colonies of bees in box hives. About a dozen were examined, in some of which the bees had died during the winter, and as many that contained rousing live colonies, to see how the combs were attached; and it was found that they were attached at the top, and a considerable distance at the side, while at the upper corners of the hives, almost without exception, there remained a hole through each comb, an inch or more across. Mr. Inman has kept bees 20 years or more; and when I pointed out these apertures to him he said, "Why, the bees always leave those to go along."

One season I ran short of hives for the swarms, and about 20 were hived in hive-caps. The caps were 7-inch, and were set down on a board with a ⅜ strip under the edge, to provide an entrance. The inside measure of the caps was 7x14x28 inches, and the bees usually occupied one end and left the rest vacant.

WINTERING IN 7-INCH CAPS.

For winter they were taken up from the bottom-boards and set upon scantlings in the cellar, and I never knew bees to winter so well; and it was in the following May, in transferring, that I noticed the combs were not attached at the upper corners. Nearly all know that it retains heat far more to have the combs attached all along the top and upper corners than at the side; and unless the bees can be taught to modify their instincts this advantage can not be claimed.

On the contrary, it is really an advantage to have a space around the frames in winter, and we want a circulation of the kind mentioned, and the closed-end frames afford it in one of the best possible ways. The reason my bees wintered so well in the caps was because the air that circulated among the combs and around the cluster of bees took up moisture and impurity, and passed on into the vacant part, away from the bees. There must be a circulation of air in the hive. Put six inches of chaff over the colony out of doors in cold weather, and there will be a forced circulation of air upward through it. Put the same colony in the cellar and there will not be a circulation through it, but the moisture and impurity will pass from the cluster of bees just the same, and lodge in some part of the brood-chamber, to the destruction of the colony. We can provide a draft that is equivalent to that through the chaff by raising the honey-board a little at one edge. The amount of ventilation a colony needs depends upon the temperature of the outside air. The lower the temperature, the more chaff and less other ventilation.

VENTILATION WITH CLOSED-END FRAMES.

W. A. Boynton, on page 847, describes how frames and hives swell when subjected to different atmospheres. Propolis isn't soft and pliable in winter; so if a frame changes in the least there will come cracks between every one of the closed ends, so that air can get out slowly on all sides. I have known hundreds of combs to crack on account of a change of temperature, and sometimes they dropped entirely out of the frames, and that when they were not moved at all. Propolis breaks sooner than wax.

Dewitt Miller is a bee-keeper living near Bassett, Ia. I went to look at his bees in May, 1890. There were 34 colonies. I wanted to buy the strongest ones. Some racks of sections were left on all that winter, and he told me I might have my choice out of those not having sections on, for $5.00 each. Upon closer examination I found there were 15 which were very strong, and 19 very weak, and that every strong colony had sections on. The bees had not clustered in the sections—it was simply vacant space. In the weak colonies, enameled cloth was laid directly upon the brood-frames, and with the other colonies the enameled cloth was spread upon the top of the rack of sections. The drafts that did not circulate around the sides of the combs circulated into these racks of sections, and saved the bees by conducting away impurity and moisture. Mr. Miller's cellar is a rather warm one, and the bees could endure considerable ventilation; had it been colder they would have done as well with less ventilation—about as much as is furnished by the cracks and empty space that accompany the closed-end frames.

TESTING MOISTURE AND VENTILATION.

The reason most bee-keepers do not appreciate the effects of moisture and ventilation is because the wood of the hives runs in a horizontal direction. Take a ten-frame Langstroth hive, and nail the bottom and cover-boards on solid; then turn the hive up on one end and subject a colony in it to five months' confinement, where the temperature is below 40°, and

the moisture will collect on the inside of this hive and split the sides open. I have had them split open so that the hive fell into two parts, and in February there were cracks, in the previously solid wood, ½ inch wide. Sometimes colonies would make a great fuss until the hive split open, when they would become quiet. At other times, when the hives were in the usual position, with tight cover-boards, the colonies became uneasy; and on raising the edge of the boards a little they became quiet, and wintered well.

CLOSED-END FRAMES ARE A REGULATOR.

The more the moisture accumulates in the closed-end frames, the more they swell and widen the cracks until there is just the right amount of ventilation; then when the ventilation is too much they dry out and approach their former state. Henry Alley said in the *Review*, that we can *winter* bees all right, but the difficulty is in *springing* them.

Now, I believe if bees are wintered properly they will take care of themselves through the spring; but with poor wintering, when the colonies come out weak and sickly, there is the difference which was evident in the wintering of Mr. Miller's bees. It is as much trouble to nurse up a sickly colony as a good colony is worth, and 50 well-wintered colonies are worth more than 100 which must be springed. It is no trouble to "breed up" well-wintered colonies. Closed-end frames regulate the ventilation without the aid, and probably without the knowledge, of the apiarist. C. W. DAYTON.

Clinton, Wis., Nov. 2.

[You have produced some good arguments for the closed-end frame, and we have been wondering whether you were using them or not. In one of your articles which appeared in the *American Bee Journal* we had concluded that you were opposed to the use of fixed frames of all kinds; but it seems you are an advocate of the closed ends. There is no denying the fact that they have many decided points of advantage over many others. If we could adapt them with any degree of satisfaction to an eight-frame L. hive, or to the hives already in use, we would use them in preference to all others; but so far the Hoffman seems to be the nearest approach we can make to them. They are partly closed-end, you know.

In reference to the box hive, it is quite likely you have touched upon one or two of the essential conditions for its good wintering. After all, of late years we have had no trouble in wintering in eight-frame or ten-frame L. hives, with open-end or loose frames, either in or out of doors. The last ten or twelve years our percentage of loss has not been above three per cent; but almost every spring we have a few weak ones to nurse up.

This topic is seasonable and timely; and instead of being all in a maze on the wintering question, light from a multitude of testimonies is surely coming, if, indeed, it is not already here. What we need to do now is to compare notes, and sift out the truth.] E. R.

WHERE TO KEEP HONEY.

GOOD ADVICE.

A correspondent writes that his "honey has all turned watery, apparently, as the comb looks transparent, and there are drops of water or thin sweet standing in many places on the combs." After thus saying he asks whether I can explain to the readers of GLEANINGS and himself what the trouble is. This question has been asked and answered so often it would almost seem that all should know the trouble, without any thing further being said on the subject; but as he is evidently trying to keep his honey late in the season, perhaps a few words on the subject may not be amiss, especially to those who, like him, wish to keep honey till into the winter.

Some seem to think that the cause of honey becoming watery is because the bees do not thoroughly ripen it before sealing it; but if they used a little more thought on the subject it would seem that they must see the fallacy of such an idea; for, whether ripened or not, the honey can only ooze from the cells after being capped, on account of a larger bulk of liquid being in the cell afterward than there was at the time the bees sealed the cell. This can come from only one source, which is always brought about by either cold damp weather or a non-circulation of air, or both. Honey swells only as it becomes damp; and the first that will be seen of that dampness will be in the unsealed cells where the honey will have become so thin that it will stand out beyond the cells, or, in other words, the cells will be heaping full. If the dampness remains, the sealed honey will soon become transparent, while the honey from the unsealed cells will commence to run out, daubing every thing below it; and eventually, if the cause is not removed, the capping of the cells will burst, and the whole will become a souring mass. In one or two instances I have seen honey left in such cold rooms, where the moisture was also very apparent, that it became so very thin that it ran down from the combs so it stood in puddles on the floor all around the bottom of the nice white cases in which it was stored. It was evident that this honey had once been of the very best quality, from the nice appearance of the cases; but the grocer had put it in the cellar when it arrived at his store, and there it had been left till it had thus become very nearly good for nothing.

When I first commenced to keep bees I stored my honey in a tight room on the north side of the house, where it usually remained from four to six weeks before crating for market. In crating this honey I always found the center and back side of the pile watery and transparent in appearance. As that which was stored first was always the worst, I thought it must be owing to that being the poorest or least ripened, until one year I chanced to place this early honey by itself in a warm, dry, airy room, when, to my surprise, I found, upon crating it, that this first honey had kept perfectly, while the later honey stored in the old room was as watery as ever. This gave me the clew to the whole matter; so, when I built my present honey-room I located it in the southwest corner of the building I call "my shop," and painted the south and west sides a dark color to absorb the heat of the midday and afternoon sun. On two sides of this room I fixed platforms for the honey, as has been illustrated in one of the back volumes of GLEANINGS. The sections were so piled on these platforms that the air could circulate all through the whole pile, even if it reached the top of the room. During the afternoons of August and September the temperature of the room would often be raised to nearly or quite 100 degrees, which would warm the pile of honey to nearly that degree of heat; and as this large body of honey once heated retained the same for some length of time, the temperature of the room would often be from 80 to 90° in the morning after a warm day, when it was as low as from 40 to 60° outside at 6 o'clock A. M. By this means the honey was being ripened each day, and that in the unsealed cells became thicker and thicker, when, by

September 15 or 20, or after being in the room from four to seven weeks, the sections could be tipped over, or handled in any way desired, without any honey running from even the unsealed cells that might happen to be around the outside of the section. By having the door and window open on hot windy days the air was caused to circulate freely through the pile, when I found that it took less time to thoroughly ripen the honey than it did where all was kept closed. In doing this, of course it is necessary to provide screens, so as to keep flies and bees out of the honey-room. If I wish to keep honey so late in the fall that the rays of the sun fail to keep the room sufficiently hot, or should I desire to keep it into the winter, or at any time when the temperature of the room falls below 70° while the honey is in the room, I build a fire in the room, or use an oil-stove to heat it up to the proper temperature of from 90 to 100°. In this way honey can be kept perfectly for an indefinite period, and can always be put upon the market in the very best condition.

Having once obtained our honey, it seems very foolish to me to neglect it so that it deteriorates to the condition of a second or third class article. We should all strive, not only to see how large a quantity we can produce, but also to have it of good quality, keep it looking well at all times, and put it upon the market in enticing shape. G. M. Doolittle.

Borodino, N. Y., Nov. 4.

[Doolittle's advice is sound; and we especially commend the point he makes, that, after having secured a good crop, we do not want to spoil it all by a piece of ignorance or foolishness.]

TIME OF CELLARING BEES.

WRITING FROM HEARSAY EVIDENCE.

This year my bees were taken into the cellar Nov. 5 and 6. Practically, their confinement began some time the last of October, for they had not flown any since that time. The weather seemed pleasant enough for them to fly, but they appeared to have sense enough to know that there was nothing for them to do outside, and so stayed at home. If I had not been hindered by other things, I should have taken them in sooner. The question may be raised why I took them in so early, and why I would even take them into the cellar in October. Well, I'll tell you. I don't know what the weather will be, and it's likely to rain any day and turn off cold, and I don't like the idea of taking them in wet and frozen. I suspect it's harder on them than two or three weeks of longer confinement. In a milder climate, of course they would be brought in later.

If I knew the weather would continue all winter as it is now, they would not go into the cellar at all. But just because I don't know what weather may come any day, I can't take the risk to leave them out, even in mild fall weather. Why, sometimes the mercury runs away below zero in November. Even before they were taken in, it went down to 24° above. Now, *if* they could stay out two or three weeks later, and then have a good fly, it might be better; but I'm not sure of flying weather again before spring.

If they were in the cellar, and every night the temperature should go down to about freezing, as it does the last of October and first of November, we would talk about the danger-point; but we don't say any thing about it when they are out of doors, probably because we expect them to have a fly shortly. The cellar-doors are left open day and night, the temperature being about 45°, so that the bees are the same as outdoors, only they have more even and milder weather. I said my bees were all in. I should have said except a dozen that I want to try with the new winter cases.

DO BEES REASON?

The Query-box of the *A. B. J.* has been wrestling with this question, the replies varying from a blunt "no" to that which credits them with using more reason than some members of the human family. The repliers would doubtless have been more in accord in their replies if they had first had a full agreement as to what constitutes reason and instinct.

Any one who has carefully watched bees for some years can cite enough facts to make out a pretty strong case in favor of their using reason, or something very nearly akin to it, and he can also cite actions that clearly indicate an entire lack of any thing like reason. On another page of the same journal is an article copied from the *Phrenological Journal*, written by M. L. Holbrook, M. D., taking very positive ground that bees do reason. Without debating the correctness of his ground, I suspect that any one familiar with bees would not be very much strengthened in his belief in their reasoning powers by the arguments given. According to Dr. Holbrook, the reasoning power is shown in the fact that bees use the right kind of food to produce queens or workers; that the queen knows enough not to lay too many eggs, especially drone eggs; "that, when carried to countries where they find supplies of food all the year round, they cease to store it up;" that they pursue and sting one who robs them of their honey; that they have a knowledge of human nature, and know their friends from their enemies reasonably well; that they know how to build combs in new and difficult places, and that they station ventilators at the hive-entrance. Other facts the doctor says he might mention, but these seven he thinks sufficient for his purpose.

However good some of these arguments may be, so much of error is mixed up with them that the strength of the whole fabric is badly impaired. For instance, "In Australia, where food is abundant most of the year, in order to have honey it is necessary to import new queens that will produce workers which have not had experience in that country." "Why do bees pursue and sting one who robs them of their honey, if they do not know its value?" (As if they wouldn't sting one who brings them honey or does them any other favor!) "It has been stated on very good authority, that the Italian bees will sometimes attack in mass a man who has robbed their hive, days after the occurrence, as if to destroy him." (How thankful that so many of us have escaped through all these years!) In ventilating, "to be able to remain in their places, they seal their feet to the floor, otherwise they would fly away." *Seal* their feet! Why is it that, when people want to write about something of which they are ignorant, the poor bee is so often selected as the victim?

NUCLEI SWARMING OUT.

Complaint is made that nuclei in small hives swarm out. Years ago I used hives for nuclei by dividing up a ten-frame hive into six apartments, putting a full-sized frame in each apartment. The plan worked well, and I don't remember more than a single case of swarming out, and that was from exceeding heat. If I remember rightly, the nucleus had just been placed and had no queen. But the apartments being 2¼ inches wide, they were very roomy for a single frame, and there was some annoyance

from bits of comb being built on the walls. A year or two ago I thought I would make a nucleus hive that would not be objectionable, and made the apartments 1¾ wide, hoping that this closer spacing would prevent building of fins on the side-walls, and thus make it easier to handle the combs. It was a success in that direction. The frames came out beautifully, but so did the nuclei, much too often. I can not say positively what made the difference, but I can only think of that half-inch narrower space. So I think I can recommend the old nucleus hives that I first made, as being on the whole quite satisfactory. C. C. MILLER.

Marengo, Ill., Nov. 8.

[Although your locality, doctor, is a good deal colder than ours, some things have turned up recently that make us wish that our bees were in the cellar. For the sake of experimental purposes we winter both in and out of doors, in permanent chaff hives, and in single-walled hives having winter cases. During our cool days, when the bees bunched up pretty close in the hives, we took occasion to examine the clusters of every colony of our over 200. Those in the large chaff hives and small Dovetailed chaff hives, and in the single-walled hives in outside winter cases, had nice clusters, and the winter case colonies were in as nice condition as those in the large chaff hives. In the single-walled hives the clusters were drawn up tighter, and, what is more, there were small knots of bees that were left on the outside combs dead, the cluster having contracted so as to leave them, as it were, high and dry. It is evident, then, that the cool days on colonies without protection were detrimental, and that anywhere from 5 to 10 per cent of the bees had died prematurely in the unprotected hives, because they were left high and dry, as was explained. This argues strongly for protection, even during the months of October and November and up until the time the bees are put into the cellar. From this, if future observations shall substantiate it, we shall conclude that we shall do better to carry the colonies that are to be wintered indoors into the cellar early, or put on the outside winter cases temporarily, until the same are put into the cellar; or, what may be better for our locality, leave them with the winter cases on all winter outdoors.]

LADIES' CONVERSAZIONE.

BEE-STINGS FOR RHEUMATISM.

MRS. AXTELL SUGGESTS ALSO A KIND OF SURGERY AS A REMEDY.

For four years or more I had been troubled with rheumatism in early spring. Sometimes it would begin in the fall, and bother me all winter, more or less. Sometimes it laid me up so I could not work, so severe was the pain in my right hip-joint. Often the pain was so severe I could scarcely keep from screaming if I happened to twist the limb out of its accustomed positions. I did not have faith or nerve enough in the sting cure to go to the cellar for bees to sting me. I sent to John Linden, of Cleveland, O., and procured his "little black doctor," the little instrument that holds thirty golden-pointed needles, and the [illegible]um, or irritating oil, and book of instructions called the "Exanthematic treatment." I inserted the golden needles by a spring that jerked them into the flesh so quickly they hurt but a trifle; then I covered all with the oil and a heavy coating of cotton batting. The above helped me more than any thing the physician could prescribe; in fact, he said I could not use any thing better. The price of instrument and medicine was but $6.00.

That was about five years ago. I was almost wholly relieved for the five years, except a slight lameness occasionally, caused by working on the damp cold ground early in the spring or late in the fall, that yielded readily to a little kerosene on a heavy woolen cloth, and laid on.

This winter, again, I had a very severe attack caused by riding out without sufficient wrappings. On coming home and getting warm, rheumatism took me in my left shoulder. It was a very severe pain. I could hardly get a breath without feeling as if a knife were piercing my shoulder. Again I used that needling process, and was wholly relieved in ten minutes. The application was so powerful that the veins looked swollen in my hand; and great heat ran through the arm, but the pain was gone. This was before time to work with the bees much in the spring; but as warm weather advanced I had plenty of opportunity to prove that bee-stings would not prevent rheumatism, as that same arm seemed to carry, after a few weeks, a continual dull pain which increased from time to time. I consulted three different physicians, and they all pronounced it rheumatism and neuralgia. I used the little needling instrument, but it did not relieve me as before, and I began to fear I should lose the use of my arm, as I could scarcely bear the pain at night, and in the day time I carried it much of the time in a sling.

I went to my physician and told him that I believed what ailed my arm was inaction of the liver, and indigestion. He questioned me, and said he thought so too, and prepared medicine to arouse the liver, which helped me wonderfully. Then peaches and grapes ripened, and he wished me to use them very freely, which has almost wholly relieved me.

I write the above as so many of our bee-keeping friends from time to time write of having rheumatism that I believe many who are troubled in that way might find relief, not in applying remedies to the arm, but in arousing the liver, and using peaches and grapes very freely —not only a sauce-dishful at meals, but eat freely of them just before meal time, both cooked and uncooked. Probably not every one would be thus benefited, but I am sure many would be. The peaches and grapes are a cheap medicine, even if we had to buy them canned. I think they did me the most good when eaten ripe, without sugar or cream, and uncooked.

I haven't much faith in the sting cure for rheumatism, either to prevent it or cure it. Possibly it might cure some kinds of rheumatism. Doctor called mine bilious rheumatism when he saw what helped me.

Mr. Axtell has had several very severe attacks of rheumatism in years past, which have readily yielded to that exanthematic treatment, or needling process, which our home physician greatly recommends for many kinds of rheumatism.

I believe one should not neglect pain, but in some way change the mode of living, or apply an irritating plaster or the exanthematic treatment before the disease becomes settled. Kerosene, poured upon a cloth, and the cloth laid upon a hot stove until as hot as can be borne, and bound on, will often drive rheumatism away, and it is also good in threatening pneumonia or pleurisy; but, better than all, is not to needlessly expose one's self to cold or damp weather, as an ounce of prevention is better than a pound of cure. MRS. L. C. AXTELL.

Roseville, Ill., Nov. 1.

[My good friend, I should call your remedy, in one sense, a surgical treatment; and, by the way, I forgot to notice, in our last issue, that surgeons are enumerated in the list when our friend said that the world would be better off without doctors. Surgery very often gives relief as surely as the wagonmaker mends a broken wheel. And this reminds me that somebody has invented a machine to cure bee-stings by means of hypodermic injections. I suppose the philosophy of your remedy is, that the needles puncture holes so the medicine can reach the point where the disease is located; and I am very glad to know that your family physician indorses and recommends the remedy. I am very glad, also, for the suggestion that plenty of good ripe fruit will often of itself take the place of medicine. This, you know, supports and indorses Terry's suggestion of strawberries taking the place of medicine: and because he recommended it, a whole quart at a meal, the great public came down on him almost fiercely. Why, whenever I feel a little out of sorts I go and try a real hearty meal of fruit, almost the first thing; and I am so much in the habit of finding relief, as you do, that I can heartily indorse all you have said.]

A. I. R.

OUR QUESTION-BOX,

WITH REPLIES FROM OUR BEST AUTHORITIES.

QUESTION 196. *Some think it better, in order to have bees winter well, to raise no young bees after August, while others think it better to encourage the queen to lay as late as possible. What do you think about it?*

I want bees raised late in autumn.
Illinois. N. W. C. MRS. L. HARRISON.

We prefer to have our colonies strong for winter.
Illinois. N. W. DADANT & SON.

I think it best to have them breed as late as they will.
California. S. R. WILKIN.

I think we better leave it to the bees. They are wise in such matters.
Michigan. C. A. J. COOK.

I think I should prefer the young bees, provided they hatch some little time before really cold weather comes.
Illinois. N. C. J. A. GREEN.

I have had the very best success with young bees for wintering, notwithstanding the many plausible theories in regard to the matter.
Ohio. N. W. H. R. BOARDMAN.

I like them raised as late as possible, but not so late but they can have plenty of outdoor exercise before going into winter quarters. I have had some experience in that line.
Ohio. N. W. A. B. MASON.

I think it best to let the bees do as they please in the matter; i. e., sufficient is not gained to pay the apiarist for trying to make them do other than what their own inclination prompts them to do.
New York. C. G. M. DOOLITTLE.

I have had them winter well when brood-rearing ceased early in the season, and also when it extended late in autumn. I have lost heavily under both above conditions, but prefer to take my chances when we have a late crop of honey, if it is all gathered from flowers.
Wisconsin. S. W. S. I. FREEBORN.

I think queens usually know their business by instinct better than the bee-keeper by reasoning. When bees are wearing out fast, or becoming aged, by gathering honey, it seems to be a provision of nature that others should be reared to take their places. I have observed no unpleasant results from young bees in the fall.
New York. C. P. H. ELWOOD.

I think I'd rather have no *very* young nor very old bees. If we knew just what bees are to die in the hive in the winter, might it not be best to kill them in the fall, and save the honey they would eat, as well as the feelings of their mourning sisters? Or was that Hosmer's theory?
Illinois. N. C. C. MILLER.

So many printed it, that I once supposed it was a fact that young bees wintered better than old ones. Experiment on a large scale, and many times repeated, proves to me that it is not so. Old bees are less apt to have diarrhea for physiological reasons which you have all observed, and some of you understood, no doubt. I do not care to have my queens lay eggs at all after the last of August.
Michigan. S. W. JAMES HEDDON.

I don't see as it makes any difference. I have had 8 swarms winter well with very old bees. The only advantage with young bees will perhaps be visible in the spring. If the weather is unfavorable, like the present, the old bees might drop out quicker. As to wintering from November until the 1st of April, it isn't much of a trick to do that successfully; but from April 1st to June 1st is where my losses come in.
New York. E. RAMBLER.

Before melilot was growing so bountifully around Cincinnati as it does now, which keeps our bees breeding late in the fall, bees would cease breeding in July, and I found often not a sign of brood in August, in some of my hives. In September they would commence again to breed; and in some hives there could be found five or six sheets of brood at the beginning of October. My bees wintered just as safe then as they do now.
Ohio. S. W. C. F. MUTH.

We never try to control the bees about breeding late. They do as they please, and I think they will manage that part of the business safer than I can. In fact, we seldom see our out-apiaries from the last of July until the first of November, when we prepare them for winter, and all we have seen of the out-apiaries this spring so far (May 10) was one visit in April, to count them and just look into five or six in each yard, to see whether there was enough honey.
Wisconsin. S. W. E. FRANCE.

My experience teaches me that bees hatched the latter part of August and during September are better to winter than bees hatched the last of October or in November. Very young bees are not as hardy as those of middle age. Bees too old or too young are not desirable for wintering. If our bees could have occasional flights in winter the young bees might winter well; but when they are confined to the hive from November to April they are not as good. So says my experience.
Vermont. N. W. A. E. MANUM.

Both are wrong. Let the bees settle that matter themselves, and they will settle it right. Here we sometimes have swarming in September—how shall we stop their breeding in August? Very likely if you persistently tinker a colony into an unnatural condition, so that most of the population are young bees that have never flown, while the old bees are mostly worn out and gone, the result will be bad; but no danger need be feared from young bees naturally raised in September and October.

Ohio. N. W. E. E. HASTY.

[We are surprised to know how many of the respondents above favor late breeding, when it comes about naturally on the part of the bees. We have had excellent results in winter with only *old* bees to go into winter quarters. The year that we wintered so well nearly 200 colonies was just following the season when we were having such ravages of foul brood. At least half of the colonies had had their brood destroyed in order to cure the disease, the bees, of course, having been put into clean hives on frames of foundation. All these were old bees, and yet, so far as we could discover, they wintered just as well as those that didn't have foul brood, and among which brood-rearing continued clear up into October, in some cases. Taking it all in all, we rather prefer to have a lot of young bees go into winter quarters—not the real young fuzzy kind, but those that are sufficiently mature to wear off the downy appearance, and to perform the labors of the hive.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE LEACH SECTION-FORMER AND FOUNDATION-FASTENER COMBINED.

Friend Root:—Since receiving GLEANINGS, Oct. 15, and reading your note on the combined section and foundation fastener, I have received one of the machines direct from Mr. Leach, with the improved pressure, and I felt anxious to test it at once. I have done so; and I must say, in justice to the machine, I have thoroughly tested it on sections very difficult to close, and find it works with perfect ease on any section, as the pressure is sufficient to even break them. This machine works easily without a hitch or jerk, and it would be hard to imagine any thing more complete to work, either by hand or foot power. I consider it a most valuable device in the saving of time, wax, and labor. I understand from Mr. Leach that he is now arranging to have the whole machine constructed of iron, so as to have all parts perfect, and to weigh only about 8 lbs. If so, it can not fail to give perfect satisfaction. When you receive one of the improved machines you will indorse what I have stated here. R. E. SMITH.

Tilbury Center, Ont., Can., Oct. 22.

[We are very glad to get this report, as the machine will be indeed a great labor-saver if successful. We shall be pleased to report on the merits of the new machine when it is perfected and received.]

COLORADO, AND ITS IMPORTANCE AS A HONEY STATE.

Friend Root:—As winter is fast approaching, and the bees have all gone into their homes, I will now try to give some reports. There will be, as nearly as I can find out, about 2000 colonies of bees put up to winter in Larimer and Weld Co's. Col., and I have learned from reliable sources that the yield has been reckoned at from 50,000 to 55,000 lbs. I also send a report of the shipment of honey, as reported in *The Greeley Tribune* of Oct. 14. It reads as follows:

A carload of honey, weighing 30,000 lbs., was shipped from this city Monday to Hamblin & Bearss, of Kansas City. This vast amount of sweetness was purchased in Weld and Larimer Counties, and represented about $3000.

Greeley, Col., Oct. 26. THEO. V. JESSUP.

HOTEL RATES AT ALBANY.

Inclosed I send you names of hotels for the accommodation of those attending the N. A. B. K. A. to be held in Agricultural Hall, Albany, N. Y.:

Globe Hotel, $2.00 per day.

American Hotel, $2.00 per day.

Cox Brothers, No. 4 Williams St., $1.00 per day (temperance house).

W. H. Keeler, 488 Broadway, European plan. Rooms, 50, 75 cents, $1.00.

Kimball House, 69 Washington St., $1.00.

Merchants' Hotel, 497 Broadway, $2.00.

I. Keeler, Restaurant, 56 State St.

Odel Restaurant, 94 State St.

THOS. PIERCE, Committee.

Gansevoort, N. Y., Oct. 31.

CLEOMELLA ANGUSTIFOLIA.

I have a pretty plant from W. Z. Frazier, Carrizo Springs, Texas, that interests me. Mr. F. says this is a very valuable bee-plant. It blooms in May and continues till frost. The bees, he states, are wild after it. He adds that they have had a very dry year, so that all other plants have failed to produce honey; but this has done admirably well. He thinks it does best in a drouth. He thinks that, but for this plant, the bees would have starved. This pretty plant is *Cleomella angustifolia*. We see that the very name is suggestive. Cleome and mella make us think of Rocky Mountain bee-plant and honey at same breath. This plant belongs to the same small family that contains spider-plant and *Cleome integrifolia*, or Rocky Mountain bee-plant; caper family: *capparidaceæ*. The name, the family, the fact that it gives a good honey crop when all else fails, and that it seems to do best in a drouth, are all points of interest. Will it grow north? Will it hold its own? Will it bloom so long? Will it yield nectar in any and every season? We have arranged to try it here at the station.

Ag'l College, Mich., Oct. 14. A. J. COOK.

PUTTING CANDY IN THE WRONG END OF THE BENTON CAGE; THE PROPER WAY TO PUT BEES IN THE CAGE.

I have received two queens from different parties in the Benton cage, and the candy was in the opposite end from the hole with the cork, and I had to lift the wire and put candy in that end to introduce by your plan. Should not the shipper put the candy in that end? if not, what is the use of the directions as they are?

Stark, Mich. BENJ. PASSAGE.

[Most assuredly the candy should be in the cork end of the cage. That end is paraffined, as explained in GLEANINGS, to prevent the candy from hardening. The directions on the cover specify which end the candy is to be. The parties mentioned probably did not know how to get bees in the cage except through the small hole through which the bees eat out the candy. We always tack the wire cloth down except over the end hole opposite from the candy end. To put the bees in we simply turn the wire cloth over in such a way that the fold covers half of the hole. The thumb then acts

as a stopper while putting in the bees and queen. When all are in, the wire cloth is folded back and tacked. It is a little awkward at first, but is very easily done after a few trials. Please tell us who the parties are that made the mistake, and we will send them a marked copy of this.]

SECTION BOX; SIZE OF NUCLEUS HIVES AND FRAMES.

During the early part of the season I started a nucleus stock by means of sections instead of using frames, and I was surprised to find how well this method worked. In a few weeks the empty comb that I used was one mass of brood all over; and on placing a second tier of sections on these they were worked as quickly as those below. I took this idea of using sections from Rambler, but I have since used a frame of such dimensions that two will just fit inside a Simplicity frame. Having put foundation starters into these small frames I place them in the brood-nest of a strong colony, and, on their becoming full of capped brood, I take the small frames out of the large one, with plenty of bees with them, and put them into a Simplicity hive, between division-boards. I prefer placing four of these small frames of brood side by side, $1\frac{3}{20}$ from center to center, and support them on T strips placed crosswise, covering the frames with a quilt or board, leaving space between the frames and the board. In course of time I add a second tier of frames; and when these are fully capped over I return the whole set of frames to Simplicity frames, adding full-sized frames of brood to bring the colony up to full strength.

We are not well situated for bringing forward nuclei, on account of the cold nights, and the fact that we are 400 feet above sea-level; but still I have noticed the same difficulty in regard to using full-sized frames in other places. A two-frame nucleus seldom does well by itself. No doubt a cubical chamber of the same capacity as the two-frame space would give the best results; but from actual experiment I find that the contracted frame, as described above, increases the working capacity of the swarm in a marked degree. J. T. SIBREE.

Nashville, Or., Aug. 19.

TRANSFERRING; FULL VS. NARROW SHEETS OF FOUNDATION FOR WIRED FRAMES; QUESTIONS BY A BEGINNER.

I have, after reading GLEANINGS, decided to transfer my bees, which are in frames $9\frac{1}{2}$ x 11, to the L. frame. Having them wired, as I understand that the combs in L. frames require wiring to prevent them from sagging, I should be glad to have you instruct me how to transfer them to the wired frames.

Can I use half or third sheets of comb foundation on wired frames? Will bees build combs down when whole sheets are not used?

Chelsea, Mich., Oct. 31. B. PARKER.

[To transfer, use any of the methods recommended in the standard bee-books; in a word, cut the comb out from your old frames, and size one or more pieces so they will fit in an L. frame. Set the latter over until the wires lie on the comb; with a knife draw a gash along the line of each wire, to the septum of the comb. Press the frame down, and crowd the wires into the gashes made in the comb. Wind a string around a couple of times; tie, and hang the frame in the hive. If you do not get around to take the strings off, the bees will. They will very quickly heal up, as it were, the gashes made along the line of the wire, though they do in some cases, particularly when they have nothing else to do, eat around the wire. You can use narrow sheets, but we would recommend wide full sheets of foundation. The bees will make full combs off from narrow starters of foundation, but there may be some of it drone comb.]

SMALL BEE-SPACE AND THICK TOP-FRAMES AS A PREVENTIVE OF BURR-COMBS.

There has been much discussion of late in reference to burr-combs. Some very good suggestions have been made, and numerous theories advanced, explaining the cause of their being built, as well as offering a means whereby we may overcome them, or at least reduce them to a minimum. Our experience has proved clearly to our minds, that, by using a top-bar $\frac{7}{8}$ inch thick, and allowing not more than $\frac{1}{4}$ inch between the top of brood-frames and the bottom of super, we have not been bothered much with burr-combs. We come to this conclusion from actual observation, where we had $\frac{3}{8}$ inch between the frames and super; we had a good supply of burr-combs, and by reducing the space we found that burr-combs had become almost a thing of the past.

Another feather in regard to burr-combs, which is of very great importance, is, never place a brood-frame in the hive without being sure that the top is perfectly clean. This will tend, to a great extent, to lessen their formation.—*The Bee Journal*, Winona, Wis.

THAT FIRST BEE-ESCAPE.

As there is some controversy of late as to who is the inventor of the "bee-escape," I hope none of these claimants will get too hot if I put in my say, always recollecting the best stories are told last. I am not going to claim the premium myself, but—not long since an old German came into our office, and, on seeing a Porter bee-escape, when told its use he said: "Mine uncle in der fadder land, more as forty year ago, make him bee-escape mit stick like elder und hog-brussels. He take stick so long" (about three inches as he measured off), "clean him middle out, then make him pointed like pencil, then tie him round mit hog-brussel, then stick other end in hole in hive. De bees come out between de hairs and could no go back again."

In explanation of its use he said that some people killed their bees to get the honey; but by using this they could nearly all be gotten out into a box or other hive; then by care to get the "king" bee he could still have a hive of bees.

Here, gentlemen, is, I think, a claim prior to any of yours, patented in the "sixties," and you may be compelled to yield the honor to "Der fadder land."—*Nebraska Bee-keeper.*

HOW SOLDIERS WERE POISONED BY EATING HONEY TWENTY-THREE CENTURIES AGO.

I append here a little account of an occurrence that happened Feb. 3—6, 400 B.C., in Asia Minor, some 20 miles south of Trebizond, on the Black Sea. While the translation may not be exactly as scholarly as some might prefer, yet it is for the story I send it. It is from Xenophon's Anabasis, Book IV., Chap. VIII., 19—21.

Atlantic, Iowa, Nov. 3. W. C. FRAZIER.

"Having passed the summit, the Greeks encamped in a number of villages containing an abundance of provision. As to other things here, there was nothing at which they were surprised; but the number of bee-hives was extraordinary, and all the soldiers that ate of the combs lost their reason, vomited, and were much purged, and none of them were able to stand perpendicular. Such as had eaten a little were like men greatly intoxicated, and such as

had eaten much were like insane men, and some like persons dying. They lay upon the ground in consequence in great numbers, as if there had been a defeat, and there was great dejection. The next day no one was found dead, and they recovered their reason about the same hour that they had lost it on the preceding day, and on the third and fourth days they rose up as if they had taken physic."

[We have had this account before; but as it is of more than general interest, occurring so many centuries ago, we are glad to give place to it.]

ARE THE QUEENS FROM FOUL-BROODY STOCKS DISEASED?

I have always been under the impression that the foul-brood bacilli were to be, and have been, found in the reproductive organs, etc., of some queens taken from diseased stocks; but the following from a letter of Dr. Lortet's, in the May number of the *Revue Internationale*, shows me that this is not his opinion:

During the latter months of the past year and this spring I have received from some of your courteous subscribers six queens taken from undoubtedly foul-broody hives. I have been able, on these females, to verifiy that which I have already stated before; viz., that the eggs are healthy; neither the ovaries nor ovules contain bacilli. I believe, then, to be able to state once more that foul brood is not transmitted by inheritance, but only by direct contact with the infected animal, or by injecting nutritive substances containing foul-brood bacteria.—*Dr. Lortet.*

I think your opinion on the above, which is of so much importance in the treatment of foul brood, would be of interest to bee-keepers.—*T. D. Schofield, Alderly Edge.*

The editors of the *British Bee Journal* reply:

The quotation our correspondent gives has not escaped our observation, but we have not thought it necessary to notice it, because we do not think it is conclusive that queens do not sometimes become diseased. It only shows that the six queens examined by Dr. Lortet were healthy. Although it is believed that queens may be diseased, it by no means follows that *every* queen is so. Hilbert found, out of twenty-five queens, only three diseased. He also found that such queens given to healthy stocks produced the disease in these stocks, and that it was very difficult and almost impossible to cure the disease while such queens were present. Just as every bee does not become diseased in a foul-broody hive, and as every human being does not contract cholera although exposed to its influence, so, we take it, there is immunity from the disease with some queens. Strictly speaking, we can not say that every queen of a foul-broody hive is necessarily diseased, nor can we say that every queen is exempt from the disease. The great hope of stamping out foul brood exists in the fact that it is not hereditary, and, in cases where foul brood is difficult to cure, the queen may reasonably be suspected to be diseased, and should be destroyed, as it is hopeless to effect a perfect cure while such a queen is present.—*British Bee Journal.*

[Of the 75 or 80 cases of foul brood that we had in our apiary some three or four years ago, nearly all of which were treated on the starvation plan, and in all which the queen was retained the disease never reappeared, where we had observed due caution, putting the bees into clean hives, on frames of foundation. On about a dozen, for the sake of experiment we put the bees back into old hives, on frames of foundation, but did not scald them. In all of these the disease reappeared, showing that the spores of foul brood must have resided in the old hive, and hence the reappearance of the dreaded malady. Now, the singular point here is, that, in all of these foul-brood cases, where treated right, not one of the queens had the disease, or, at least, her colony long after treatment was perfectly healthy. In the United States we would conclude that, if the fatal germs were ever present in the ovary of the queen, the cases where this may occur are very rare indeed.]

BIG MODEL OF A HONEY-BEE.

The model of a honey-bee, measuring 4½ feet from head to sting, and 6 feet across the wings, has been received from Paris by the Biological Department of the University of Pennsylvania. It is intended for the instruction of the students.

The insect is perfectly articulated, and the wings, head, thorax, and abdomen can be taken apart with the fingers. Moreover, the head may be opened so as to display the brain within. Every organ, artery, sinew, and tissue has been delicately reproduced, and the bee is to be dissected at lectures, by Prof. Charles S. Dolley, for the information of the students. Emile Deyrolle is the maker of this singular model.—*American Bee Journal.*

HOW CAN WE DOUBLE THE NUMBER OF STOCKS IN 60 DAYS IN EARLY SPRING AND SUMMER?

I have 45 hives of bees, mostly in Root Simplicity hives, and I want to double that number at the beginning of the honey season next year, which usually commences about the 10th of May, and our bees commence to raise brood largely about 60 days before that time, and I have brood-combs for only what bees I have. Now, would it be cheaper for me to buy bees at about four dollars per colony, or divide and use full frames of foundation, and feed sugar syrup, to have it drawn out and stimulate breeding by the time the surplus season commences? Is 60 days too short a time to double both bees and combs in, and have them very strong? I run them mostly for extracted honey.

Smithfield, Texas, Oct. 30. A. C. Brown.

[If you lived in a northern locality we should say that you could not make double the increase; but as you live in Texas we can not say what you might do. Much depends upon pollen sources, and what weather you had during the 60 days. Having good weather, plenty of natural pollen, and a little honey coming in, it might be possible for you to double the number of your stocks by spreading the brood, providing you had good queens. We would suggest that a better policy would be to increase the strength of the individual colonies as much as you can without increasing the number. A rousing big colony will do far better than a couple having just half the strength. The problem that bee-keepers should try to solve is, not to see what they can do with a *large* number of colonies, but to see what they can accomplish with as *small* a number as possible of rousing heavy ones.] E. R.

TOBACCO SMOKE FOR INTRODUCING.

How do you load your smoker with tobacco, for smoking bees to prevent the recently introduced queen from being balled?

Osage, Ill., Oct. 13. C. M. Thornton.

[We have on hand tobacco dust that we use for killing lice on plants. We put about a handful of this dust into a Clark, along with the other fuel; light, and we are ready for smoking. After all the queens are caged in the hives we go around toward night and blow about a dozen good whiffs of smoke in at each entrance. Don't do this during the middle of the day or you will be likely to start robbing, for the smoked bees are temporarily drugged.]

THE LOS ANGELES CONVENTION, JAN. 6 AND 7.

Friend Root:—Since reading Prof. Cook's and A. I. Root's program for this State, in GLEANINGS for Oct. 15, I have conversed with quite a number of the bee-keepers of this section in regard to your coming, and the prospective convention referred to. The interest manifested is very great, so I can assure you both a royal reception by the bee-keepers of this whole section. It has been my good fortune to have heard Prof. Cook at Indianapolis, and to have met A. I. Root at the N. A. B. K. A. meeting at the same place in October, 1886.

As referred to in my letter of last week, the S. C. B. K. A. will meet Jan. 20, and I know every member of it is doubly anxious to meet A. I. Root and Prof. Cook; so, in conversing with the members, they have suggested a change of date for our meeting, to Jan. 6 and 7. I will consult our president, Mr. Abbott, in regard to this, and will inform you as to the result as soon as possible. Mr. J. F. McIntyre writes: "Why not take advantage of Prof. Cook's and A. I. Root's presence, and organize a State association in honor of them?"

You are not trespassing at all, Bro. Root, in your suggestions, as I consider it an honor to aid in the least in presenting such men as yourself and Prof. Cook to the bee-keepers of California. I will see to securing a hall immediately. GEO. W. BRODBECK.

Los Angeles, Cal., Nov. 5.

SHIPPING COMB HONEY IN CRATES; J. T. RIPLEY'S RULING ALL RIGHT AS IT IS.

Friend Root:—After reading what you say on page 865 about crating comb honey, I can't help feeling that the shippers and not the ruling are to blame. As for myself, I am grateful to Mr. Ripley for making that ruling, for I think it is the *only safe way* to ship comb honey, *provided* it is done right. In former years, whenever I shipped comb honey I always had more or less complaint of the glass being broken and the honey spoiled. This year I shipped nearly 3000 lbs., putting eighteen 12-lb. cases into a crate similar to the one you described in GLEANINGS, hauled it nine miles to the railroad over very rough roads, such as we have in Vernon Co., Wis. It was reshipped once in Madison, and arrived at destination, as one of the commission men wrote me, with every box safe and sound. The crates were made to hold three tiers of six boxes each, and the boxes fitted it very snug. I did not put in any hay and straw at the bottom, as you recommended, as there was no room for it. Each crate had four handles nailed to the corners for handling, the handles projecting about four inches. We found that the crates were heavy enough to require two men to carry them, and on that account they had to use more care. The handles were useful for the further purpose of preventing the railroad men from rolling them over, as they would be apt to do without them. It may be that, where honey was injured, as J. T. Fish says, the glass fronts had been covered by a thin piece of board without crating. I had thought of doing that myself when I read about Mr. Ripley's ruling; but GLEANINGS came afterward, and gave me the better way of crating.

Milford, Wis., Nov. 9. GUSTAVE GROSS.

A BIG REPORT FROM THE ALFALFA FIELDS.

About two and a half years ago I wrote to GLEANINGS about the alfalfa fields of Southwest Kansas, and stated I thought bees would do well here. As a result of that letter, a Mr. Howard, of Illinois, and Mr. Colton, of Iowa, each brought bees to Garden City in the spring of 1890, to test their work on alfalfa. I herewith report the result of their experiment:

They each have from 50 to 60 stands of bees. They average 90 lbs. of comb honey to the stand, and two swarms of bees per stand. Some hives have made as high as 180 lbs. of comb honey during the season. We no longer consider this as an experiment, as this is the second season they have done this. Bees begin work on wild flowers and fruit-bloom about April 1st to 10th. Alfalfa is ready for them about May 10th, and continues in bloom until Oct. 15th to Nov. 1st. Many farmers are just now cutting their last crop of alfalfa, and the weather is like summer. Bees sell readily for $10 per stand. Our bee-men can not supply the demand. Extracted honey sells here at wholesale from 12½ to 15 cts. per pound, and comb honey from 20 to 25. These gentlemen have given their lives to bees, and say this is the best bee-country they ever saw, and say they can handle 100 stands of bees here as easily as they could care for 50 stands in Iowa or Illinois. I herewith send a clipping from a report made of the bees here:

The new enterprise of raising bees and saving honey has proved a most remarkable success here at this time, the close of the second season. One hive has produced not less than 180 lbs. of comb honey and two swarms of bees, which latter pay all the expense, leaving the honey clear profit at 20 cents a pound, or $36. The average yield has been 90 lbs., and the increase two swarms. The little honey and money makers have gathered all this from the thousands of acres of alfalfa meadow around here, and they could easily have gathered one hundred times more if the bees had been here to pick it up. This alone offers an illimitable opening for a big fortune to the painstaking man or woman who chooses this pursuit for a living in this vicinity.

There is surely a fine opening here for practical bee-men. There are thousands and tens of thousands of acres of alfalfa bloom that go to waste for want of bees to gather the honey; and to any person desiring to enter this field we should be glad to give all the information and aid we can. A. C. MCKEEVER.

Garden City, Kan., Nov. 5.

AN AVERAGE OF 100 LBS.

Our honey season is past and gone. My bees averaged 100 lbs. of comb honey to the colony. They made a very good honey, and a majority of what they did make came from black-jack acorns. Some insect would puncture the acorn, and during the night a honey-like substance wood ooze out, and the bees, by daylight, would come in loaded down and fall down all around the entrance to their hives with the honey.

J. D. WHITTENBURG.

Marshfield, Mo., Nov. 5.

DOCTORING WITHOUT MEDICINE.

If you wish help for the small intestine, try kneading the bowels. Dr. Kellogg says this will aid digestion by increasing the digestive juices and muscular action. Count 400 or more strokes each 24 hours. If it is too much trouble, go to the Battle Creek Sanitarium. There a machine will do the work for you. Counter-irritants are excellent for internal pains or aches.

MISS LIBBIE WILLIAMS.

Delavan, Wis., Oct. 3.

A LETTER FROM LUTHER W. GRAY.

I am sorry I am still unable to settle with my creditors. My health is still improving, but it is not yet advisable for me to go to work. I hope, however, to wipe out some of this disagreeableness next spring and summer.

Zanesville, O., Oct. 22. L. W. GRAY.

OUR HOMES AND MY NEIGHBORS.

If ye abide in me, and my words abide in you, ye shall ask what ye will, and it shall be done unto you.—JOHN 15:7.

Although I profess to be a Christian, and to believe in the Bible, the text I have chosen to talk about to-day, the one just above, is one that has troubled me more or less all the years of my Christian life. Now, you may think it is a little singular when I tell you that, although it has troubled me, it has, at the same time, been a joy and comfort to me. It has troubled me, because I do not exactly understand how the promise can be fulfilled. Notwithstanding this, I believe it is *true;* and every year I live I see more and more verifications of its complete truth. You may remember that the same promise, or very similar promises, occur many times in the Bible. In fact, we find the same promise a little further along in the same chapter; nay, more: "Whatsoever ye shall ask my Father in my name, he may give it you." When I am called upon to read portions of the Bible containing these promises, especially if skeptics are present, there has always been a temptation to skip them; for I fear they may ask me to explain them, and I could not do it. Of course, I can explain them somewhat; but if an unbeliever should press me closely, he would get me into a tight place. To my great surprise, however, no one with whom I have ever talked has asked me to explain such promises, nor have they even alluded to them. All that Robert Ingersoll has ever directed against the Bible, it seems to me, is lame and trifling compared with what almost any professing Christian might point to in the Bible if he should choose.

Of course, I am aware of the light that commentators and theologians have given us in making the words plainer. Foremost is the condition of the promise. If we *abide* in Christ Jesus, and his words abide in us, are the conditions made in the outset; and who is there who has fully complied with these conditions? Müller has, perhaps, come as near to it as any one; and God has honored him by giving him tenfold —nay, we might say a hundred or a thousand fold, more than he ever expected or dreamed of when he began praying his prayers of faith. When Müller was converted he was straightway filled with intense longing to do something for the orphans and outcasts of the great city of London. He wanted money to purchase food for their bodies. But this was really only a secondary thought with him. His very soul *burned* with a desire to bring these poor children to Jesus; therefore he was unconsciously fulfilling the conditions in the fore part of our text: therefore he had faith to ask; and the whole world is standing in astonishment at what God has done for and through him. He did not ask rich men, nor did he ask *anybody* for what he wanted. He asked *God* only, and the money came. After the work was well under way, and people could see the fruit of it, it is not so very strange that the money was forthcoming from the pockets of both believers and unbelievers. But it seems next to a miracle that he received sums of money for this work at its *outset*, even before he had lifted a finger to the work, in simple answer to prayer. The whole point of the promise seems to rest on the condition or state of heart of the one who prays or asks. You may say, "Where, then, is the trouble with the little text?" I want to say, first, that I am very sure there *is* no trouble with the text. The real *trouble* is not with the text, but with us poor doubting mortals. We get in a hurry to see the answers come; and then many good people are praying for things that seem right and proper, and yet God does not see fit to answer them—I mean, from a human point of view. There are widows in our land who are straining every nerve, and perhaps suffering for food for themselves and their little ones—widows who seem devout and really faithful servants of Christ, and yet they are obliged to suffer. Yes, and there are children who pray in faith believing; and yet, according to human sight and perception, their prayers do not seem to be answered. But while I say it, a glimpse of light comes in here after all. The children that have for years prayed and suffered have many times become great and good men and women; and may it not be that in this way the prayer was answered? God knew what was best for them, and answered their prayers —yes, really answered by withholding that for which they asked, and giving them something better, may be years after. We are told that, in foreign lands, people are now starving on account of the scarcity of food. Of course, this very scarcity of food brings us better prices for our products; and even though they suffer, their suffering, in an indirect way, or, perhaps, I should say, the very thing that *causes* their suffering, brings prosperity to us. Now, many of these people are doubtless living, to the best of their ability, up to the light they have. Why does God let them starve and die if this be true? Well, most of us have learned that God permits many things to get very wrong indeed unless we, his children, set to work to right them. The world can not be brought to the light of Christianity unless we spring forward and help to do it. We must work as well as pray. As we grow older we find that God has honored us by placing the responsibility upon *our* shoulders, of disseminating Christianity and civilization.

Now, you may think my mind runs in a rather singular channel when I tell you what I have in mind. When my faith is brightest, and when I have been praying for the influences of the Holy Spirit most earnestly, this little text looks to me like a great unexplored region. You remember with what wonderful faith and persistence Columbus urged the reason of his belief that there was another world across the great seas. He saw away into the future, and, with almost a prophetic eye, rose above the rest of the civilized world about him. Even when everybody else was discouraged and gave up, he stood alone undaunted, and pushed on; and what a reward was his! His hopes were realized and his prayers were answered. God gave him a glimpse of a new world, no doubt brighter and grander than he in his highest enthusiasm had ever dreamed of. And, dear friends, I am firmly convinced that a new world lies before us, just as great and wonderful, and that it is to be found through this little text, and other like wonderful promises in God's holy word. But I was moved to write on this subject by an incident of a few weeks ago. Ours is not a peach region around here. Very few nice peaches are raised in this section of country, therefore they have to come to us, when we have them, from a distance, say from the lake shore, perhaps forty or fifty miles away. A few weeks ago a carload of peaches came to Medina. A man came with them, and, with the help of teams, scattered them, not only all over our *town*, but all over the *county*. Even in little towns, or at the cross-roads where nice peaches are unknown, a fine assortment, tastily arranged in a pretty wagon constructed for the purpose, was handed out to those who could afford to pay for them. They were assorted in regular sizes, as oranges are assorted. The smallest were sold as low as 50 cents a bushel, and then went on up, according

to size and quality, to $2.00, or even more, a bushel. As the car stood several days near our store, I became pretty well acquainted with the proprietor. I felt that he was doing good. He came from a locality where peaches were so plentiful they could not have been all disposed of in any other way. He gathered enough together to load a car, then asked the railroad companies how low they would place the car in the town of Medina. Then he came with his men and teams, and scattered them all over the country; and when one town was supplied he went to another, and so on. About the same time, a carload of beautiful Jersey sweet potatoes was dropped on the track near the peach-car. This man, too, had horses and drays for taking the potatoes around to neighboring towns. He accosted me as I stood on the walk enjoying the sight (for I did enjoy it) in words something like these:

"Mr. Root, how much can you afford to give per bushel for Jersey sweet potatoes like these in my hand?"

They were so exceedingly nice I was afraid his stock might not come up to sample, and I suggested something of the kind.

"They are right here in the car, Mr. Root; and if the whole carload is not just as good as these I have in my hand, of course you will not buy them."

I was a little prejudiced against him because he looked something like a Jew, and I confess I rather expected to be cheated in measure and quality, or something of the sort. But he gave good heaping measure—better than we are accustomed to get and give; and when I found that his potatoes were, if any thing, *better* than the samples he showed, I felt ashamed of myself. This man with his drays went all over the town and adjoining towns, giving many of the people perhaps their first taste of a *real nice* Jersey sweet potato, and I felt that he was a public benefactor. He was taking the surplus product from one locality, and, at a great deal of expense, scattering it about in a locality where it was almost unknown. The sweet-potato-car and the peach-car were to me a suggestion of something pleasant—a glimpse of brighter days in the future, for some who had toiled hard to raise crops and couldn't sell them after they were raised. The idea seemed to suggest to me a remedy for the complaints that have been made, to the effect that "farming does not pay," and also for a remedy, perhaps, for the present state of affairs when country people are leaving their farms, and pushing into towns and cities. What has been bringing this state of affairs about? You may say, perhaps, the march of progress and intelligence. Yes, I think that is right; and I think, too, that I see through it all a plain fulfillment of the promise in our text. You may think my conclusions are far-fetched. Perhaps some of you may say, or suggest, rather, that the peach-man and the potato-man were probably not Christians at all, and I really do not know whether they were or not. I know only this: That, when we bought nearly a wagonload of the peach-man, and I suggested that perhaps he would retail them around at the houses for less than we paid, before he left town, he looked me full in the face and said, "Mr. Root, I am trying to be an honest man; and when I promise you that, if I find it necessary to lower my present prices on peaches, you shall have the advantage of the reduction as well as those who buy later, I mean to keep that promise. I expect to bring peaches to Medina again, and I know the value of a good reputation for honesty and fair dealing as well as you do."

I watched the man narrowly after that; and although he was bright and energetic, and worked hard in getting off his peaches in every way possible, so as to get away before they spoiled on his hands, I did not detect a single thing in him that looked like unfairness; neither did I find any thing amiss with the man who sold the potatoes. Now, the point is right here: Whether they were Christians or not by profession, they were in a Christian nation; and I believe that Jesus meant the promise in our text to include nations as well as individuals. I think he meant we might read it thus:

"If any nation of people abide in me, and my words abide in them, they in their prayers may ask what they will, and it shall be done unto them."

You will notice it is easier to believe this than it is to believe it of individual beings. In fact, no one would think of disputing it when applied to a nation.

It has often been said, and truly said, that learning to raise fine crops is only a part of the business of farming or gardening. The other part is in disposing of all you can raise on a certain area; and perhaps as many blunders are made in securing a crop that can not be turned into cash as in failing to get any crop at all. Many of us have had experience in producing a crop when it was not wanted, or in producing a crop so far from market that it could not be disposed of profitably. Well, the little sketch I have given you indicates the line in which these difficulties are to be met and conquered. Yes, and the people who are starving across the seas are to be rescued and saved at the very same time we succeed in getting paying prices for our products. Those who are suffering from a lack of food, probably sent up earnest prayers to the great God above, if any class of people ever did; and I hope that others who raise large crops also remember to ask the great Father above to help them in disposing of their crops. I hope, too, that, in their prayers, they remember the starving ones, and ask God to help them in their desires to relieve the suffering. Now, in answering these prayers from two different classes of people, one of the great agencies to be employed is the railroads; and although some of you feel pained when I call railroads a gift from God, it seems to me to become plainer and plainer every day that the railroads *are* one of God's agencies. They may not be managed by Christian men, and they may, too, oftentimes be in the hands of unjust men and extortioners; but for all that, our railroads are through a Christian nation, and they are doing a tremendous work in relieving suffering and want in the ways I have indicated. I know full well of the complaints that are made about extortionate charges; but, dear friends, you can almost always find out beforehand what they are going to charge you. The peach-man and the potato-man both doubtless asked the question, "How low can you deliver my carload in Medina, if I decide to go into it?" If the railroad companies named a price, and the price was accepted, it seems to me they have not done so very badly. They are working hard to get something to do, just as you and I are. We hardly ever, of late, have a full carload of stuff sent anywhere unless two or more railroad companies bid for the privilege of carrying it; and sometimes half a dozen different railroads urge us by making low offers. Sometimes they carry freight so low that they do not pay expenses. Our new east and west road is in just that predicament, and I really feel sorry for them when I see how hard they are working to get trade of some kind. Of course, they did not get much if any sympathy when, in their efforts to work up trade, they started Sunday excursions; and I shouldn't wonder if they have found out already that it does not pay.

During the past two weeks I have been over their road several times. I have talked with the officers about their contemplated improvements, and they have told me, too, of their cramped financial condition. I have become acquainted with their bosses, and with the men who shovel the dirt. I know how many locomotives they have on their whole line. In fact, I have learned to feel so anxious for their success that I feel a pleasure every time a loaded train passes our place. I like to get a pleasant smile from the engineer and from the fireman; and I really believe I love the sight of the locomotives, even if they do shriek in the dead of night, and send smoke and grimy soot in the direction of our house when the wind is that way. Oh! you do not know how much happier we are when we become acquainted with men and things, and through this acquaintance learn to understand them and finally to love them.

Some of you who have heard the talk within the last few years in regard to the hated middlemen may think it a little funny or odd that I should see in these same obnoxious middlemen God's messengers to bring about his promises. But, dear friends, is it not true that the middlemen are the ones who usually do the work of saving people from starvation? I saw a little clipping in a paper, that haunts me. In speaking of the suffering in Russia, it mentioned a poor widow who went on foot to a neighboring town to see if it were not possible to find food to save her little ones from starving. But, alas! when she returned they were all dead, having, in their fierce hunger, filled their little stomachs with rags and dirt! Oh what a sight, and what a thought! My friend, imagine *your* children—your little helpless ones—being driven to such a pass as this, and you powerless to aid them! I would this minute rather be a messenger, or middleman, if you choose, to carry food to such suffering ones, than to have the most exalted position on earth; and I feel guilty, almost every hour, when I see the great waste that goes on here in this God-fearing land of ours. A few days ago I was urged to buy potatoes by the carload at 18 cents a bushel; and yet with this very fact right before our eyes, children are starving, and filling their little stomachs with rags and dirt, in the frenzy caused by hunger. "Lord, help!" wells up, and yet I fear I am not doing what I can to bring about an answer to my prayer.

You all know that I do not know very much about politics; but of late I have been trying to know more about the different political parties, and, in short, to become acquainted with them; and I believe I can say just now that I love them all. Yes, I love them especially on this election afternoon. I do not know how the election will turn out, and, in fact, I do not feel nearly as much anxiety as some do. My greatest anxiety is, that all of us may be abiding in Christ Jesus, and his words abiding in us. There is one kind of infidelity and unbelief, however, that I have seen manifesting itself through one or two of the great political parties. This infidelity comes in line with the expression that "farming does not pay." The people who quote this seem to have lost faith, not only in farming, but in the affairs of our nation. They have lost faith in our finances; and some of the speakers have even said we have the worst and most dishonest state of finances on the face of the earth. Now, are you much surprised when I tell you that some of these same people are in debt, and blame our government and our finances because they do not get out of debt? At least two individuals have said, to my knowledge, that they knew they were deeply in debt, and did not expect to ever get out of debt, intimating, at the same time, that there is no use of trying to get out with such a condition of affairs in the government as we have in the United States. They not only said they had lost hope, but intimated, if they did not say so outright, that they were not going to *try* any more. Oh what a state of heart for any one to be in! Suppose somebody owed you a hundred dollars, and when you talked to him about it he should say that he could not pay it then, and that he had given up all hope of his ever being able to pay it at all. Then if he should add that he was not going to *try* any more to pay it, what would you think of him? Or suppose he should, by his actions as well as by his words, put it like this: "I know you loaned me a hundred dollars when I was needy, and that you loaned it with full faith and belief that I would work hard to pay it back again. It was a great accommodation to me at the time, and I fully expected to pay it. But I have become discouraged, and have given up trying. I know it is not a very comfortable feeling to think that I have taken your hard earnings and can not pay you back; but it is no worse than hundreds of others are doing who have their homes and farms mortgaged, and we must all give up, and all go down together. The crash has got to come sooner or later, and for my part I do not care very much how soon it does come."

Dear friends, I have never yet heard any person give utterance to any thing quite as bad and hopeless and sad as the above; but I have heard different persons make speeches that altogether amounted to it. It comes from losing faith in your fellow-men, from losing faith in your country, from losing faith in yourself; and finally from losing faith in God and in his promises through the Bible. Just think for a moment how far, how very far away, a person's attitude of heart is who gives way to such thoughts as I have expressed, from the brief little promise in our text! "If ye abide in me, and my words abide in you, ye shall ask what ye will, and it shall be done unto you." The Bible text is bright and joyous with hope; the other has the sadness of despair and ruin and death.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

A TRIP THROUGH MICHIGAN; GRAND RAPIDS LETTUCE, ETC.

Business matters and other things took me on a week's trip through Michigan; and I want to tell you some of the things I saw and found out. In the first place, I wish to emphasize again what I have spoken of so many times before—the importance of being sociable and of getting acquainted while traveling. Of course, I do not mean by this that we shall bore everybody indiscriminately whom we come near. Many traveling people have, with good reason, learned to really feel a disgust for the individual who is constantly talking to everybody, and intruding his private affairs, without having discrimination enough to know who wants to talk and who does not. Taking it for granted, however, that you are at least reasonably well informed in regard to men and things, I most earnestly urge the importance of being cheerful, and taking an interest in things generally, being ready to lend a helping hand, and that you listen to what is going on. As an illustration: Almost at the very outset I discovered that I wished to get off at a certain station near my destination, as it would save me considerable delay and travel. Now, I did not

even know the name of this station, nor on what road it was located. While having my hair trimmed, as the barber seemed to be sociable, and a well-informed man, I told him my predicament, and was greatly pleased to find that he once carried on business in that very locality, and therefore he could tell me all I wanted to know.

My first point was the lettuce-greenhouses at Grand Rapids, Mich. I found our good friend Eugene Davis as busy as ever, and as full of enthusiasm in his chosen industry. He was just completing two new greenhouses. In fact, when I found him he was building the chimney to one of them with his own hands. He insisted, however, on taking off his mortar-covered apparel, and hitching up so as to take me around to see the new houses just going up. Eugene Davis was not only the introducer of the Grand Rapids lettuce, but he is the pioneer lettuce-grower. It seems a little funny, but nowhere else on the face of the earth do they grow lettuce equal to the product of Grand Rapids. Even away down in Cincinnati they must send to Grand Rapids for their choice lettuce. Now, it can not be in the soil and climate, as it is with the Kalamazoo celery, for the lettuce is all grown under glass, or nearly all. Friend Davis found out how to do it, and his neighbors all around are copying him. He took me around to so many different places where new greenhouses have recently been put up, or just going up, that I was really bewildered. Although it was a cool November day, quite a few were handling putty and setting glass. Perhaps there are now something like a hundred houses, solely for lettuce-growing, in the vicinity of Grand Rapids. These houses are usually 100 feet long by 20 or more broad. (See full description in our book, "What to Do, and How to be Happy while Doing it.") Some men have one house, others three or four, some half a dozen. Friend Davis has now nine houses in all. I made the visit principally to satisfy myself on several puzzling points in greenhouses. For instance, shall we lap the glass, or butt the ends together? Friend Davis tries both, and does not see much difference. If I am correct, however, he, with what experience he has had, would butt them together instead of lapping them. Shall houses stand north and south, with the slope alike on both sides, or shall they face the south, with a long slope fronting the sun, Peter Henderson fashion? Friend Davis favors the latter plan, although a great many new houses are north and south. Where one has two or more houses, shall he place them close together or leave a driveway between them? Of course, there is economy in having them close together, and still more economy in having the middle wall omitted, so the two houses are virtually one. This will do for houses standing north and south on level ground. With the Henderson style, however, they must either be on a side-hill, or leave a roadway between them; otherwise the house further south will shade the one behind it. This may be remedied, however, by using a side-hill with a gentle slope. In this case, however, the two houses must not communicate; for if they do, the hot air, being lightest, will push into the house standing highest.

Shall we warm our lettuce-houses with steam, hot water, or flue? Friend Davis prefers the flue, and burns wood. A good many who have steam and hot water in some of the houses, and flues in others, give the preference to the flues. Friend Davis tells us that a flue is much the cheaper; and in winter time, when the houses are inclined to be damp, the flue seems to dry it out more effectually than either hot water or steam; and this enables lettuce to receive with safety more frequent waterings. Another objection to having the houses stand close together is the snow that comes down in the gutter. Unless the houses are made unnecessarily strong, the great weight may break in the sash. Of course, it can be shoveled out, but this is a cold and disagreeable job, and somewhat dangerous, both to the glass and to the operator.

Friend Davis gave me the real history of the origin of the Grand Rapids lettuce. It is *not*, as it has been said, a selection from the Black-seeded Simpson, but it is probably a cross between the old Hanson lettuce and a strain, name unknown, brought, by an old friend of his, from the old country, sixteen or seventeen years ago.

Now, we have here a wonderful illustration of what one comparatively obscure person may do in developing and opening up a new industry. Friend Davis first placed on the market a sort of greenhouse lettuce that does not make heads. By experimenting he developed a greenhouse specially for its growth, and also in the same way selected the very best soil and fertilizer. What do you think they are? Simply sandy loam and horse manure! Four or five inches of sandy loam, such as is found anywhere around Grand Rapids, and two inches of fresh clean horse manure, spread over it and forked in as described in our book, What to Do, is all. This gives rank, white, crisp lettuce, superior to that raised in any other soil manured by compost. Fermented manure has been tried again and again, but it does not do as well. Chemical fertilizers have also been tried, but they are "no good." The stables in the city save expressly for him fresh manure without straw. When it is spread over the beds, it is beaten or pounded up fine with a stick a little heavier than a piece of lath, having some short nails driven into it. No matter how many greenhouses his neighbors put up, for the last fifteen years the demand has been, most of the time, beyond the supply. Of course, this may not always continue; but where the quality produced is equal to that raised by friend Davis and his neighbors, there seems to be no lack of a market. Even at the date of my visit, Nov. 4, the grocers of Grand Rapids were offering 20 cts. a pound; and the proprietor of the only lettuce that was fit for market would not let it go. I asked him why; and he said that, in two or three weeks, it would make such a growth as to make nearly double the number of pounds per square yard, therefore he preferred to let it stand in the way rather than to sell it as it was at 20 cts. per pound. Just one man, with enthusiasm, and a love for work, both with brain and muscle, has built up this great industry. Dear reader, this world is not overstocked with such as he. Does not this little story stir in you a determination to wake up and do likewise—not in raising lettuce necessarily, but in a thousand and one ways that God has provided for those who love him through his works?

I now want to give you another illustration right along in this same line. When I arrived at Manistee my brother-in-law said I must go and see his friend Mr. Johnson. When he told me he was a man who made clocks, I remarked it had been so many years since I had had any thing to do with clock-making, perhaps I should not be well enough posted to appreciate him. He remarked with a smile, "Oh! you wait and see. I guess there will be no trouble but that you will find something interesting."

While I was trying to imagine how a single man could build clocks away up there in Manistee, we were ushered into a little square building standing by itself out in the dooryard. Al-

though this building was plain, it was a rather pretty piece of architecture after all, and seemed to have been built for some special purpose. Let me explain. Mr. Johnson is building tower-clocks. He owns a rather pretty machine-shop; and when they did not have orders for other machinery he amused himself by making these. When he puts them up in a church or court-house he is expected to regulate them and warrant them; and although he is tolerably well along in years, he began almost in his old age, as it were, to study horology and the matter of time. A sun-dial did not satisfy him. He wanted something that would enable him to set his clocks to a tenth of a second; and because he loved the work, he built this little room I have mentioned, for an observatory. The instrument in the center of the room, in the first place, must be absolutely solid; and one would smile at the piece of engineering that held it firm and true and *still*. Then you would smile again when you saw the expensive apparatus he used to get it exactly level. Out through a comparatively small window his telescope pointed, and on the blackboard were the names of fixed stars, and rows of figures to indicate astronomical calculations. He told me more about latitude and longitude during our visit than I ever knew before. Then he told me about the latitude and longitude of the heavens as well as of the earth; and he turned his books over and showed me the way in which columns of logarithmic figures were used in their computations. Then he discoursed about time on our earth, and the recent arrangement the railroads had been compelled to adopt, dividing off this continent into hours as well as degrees. When I suggested that his window should have been larger so he could see the planets, and especially get a glimpse of the rings of Saturn, which are now, as we are told, staggering like a drunken man, so that astronomers are watching day by day to see them split to pieces and turn into moons, or something of that sort—when I told about this planet Saturn he at first did not say any thing, but finally turned to me with something like this:

"Mr. Root, I have never seen Saturn through that telescope, and I do not want to see it. I haven't *time* to look at Saturn. More stars pass before that little window of mine than I can ever look at and get acquainted with during all my life."

Here was a home-made scientist and a home-made astronomer who found joy and happiness in studying, day after day and year after year, one little side-show, or side-*light*, perhaps, of astronomy—that part of astronomy which pertains to taking the latitude and longitude, and getting correct time. If I do not myself quite understand what I am talking about, perhaps some of you do. Well, this man, in his investigations, had visited many prominent scientific men who were working right in his line. Yes, more than that; as he climbed up into the stars and looked about him, these great professors, with their piles of books and long columns of figures, recognized him as a comrade and reached down to him a helping hand. They helped him to step up over the topmost round of the ladder on which he had so painfully and slowly climbed up, and gave him assistance; for, you see, he was just prepared to grasp ideas, as a hungry man grasps for food; and when he met with somebody who, like your humble servant, could "catch on" now and then to what he had been working out about the stars, he felt rejoiced. Oh! didn't we have a pleasant visit for an hour or two? My brother-in-law smiled and looked happy too, when he saw with what enthusiasm we two compared notes.

I very soon tried to interrupt him by asking him if he could go through all this and not come out a Christian, full of love for, and faith in, the great God above. At first I thought he rather evaded the subject; but when he got to the right point he satisfied me fully. He finds great joy in treading the paths, as some one has said, that the Almighty had trodden before him, and finally ended in a speech something like this:

"Mr. Root, if Robert Ingersoll were to get a telescope like mine, and study God's works as I have done, for just one month, the next month after that he would be going around starting prayer-meetings." He may not be the author of the above thought. In fact, I think he said as much. He showed me a pile of books. Said he, "Mr. Root, when it comes Christmas or Fourth of July, the rest have some money to spend, and that is all right; but here"—and he took up several books in his hands—"these are *my* Christmas and *my* Fourth of July; and when somebody talks about going on an excursion to have a good time, I just take *my* excursion here in this little room, with my telescope, transit instruments, and books."

My companion told me afterward that Mr. Johnson's daughter was the one who kept the room and apparatus looking so neat and tidy; and he had also a son who took charge of the machine-shop in order to enable his father to pursue his beloved studies pertaining to terrestrial and celestial meridians and parallels.

It just now strikes me that this part of my visit does not belong to gardening; but I think I will let it remain in this department, after all, for it shows so well what one single human being may do in the way of acquiring an education in the line of the higher mathematics, even after he is *fifty years old*. Yes, and he too, like Eugene Davis, worked it all out at home, in his own *garden* and *dooryard*, with the assistance of his *own* family. How does it strike you, my friend? Are *you* too old to study the works of God? His beautiful apparatus and observatory cost quite a lot of money, of course, and he told me had prayed for means to go on with his studies in a way he had never prayed for any thing before in his life, and God had blessed him in his finances, and had blessed him with a son and daughter who loved to help him, and had blessed him, too, with a loving wife who shared his enthusiasm, and listened to his outbursts of joy when he had solved a difficult problem; but, alas! his dear wife is entirely blind. Through *his* eyes she must see, and know of these wonderful things above; and before I left the city he called to me, saying he was very anxious to have his wife *see* Mr. Root—said seeing being accomplished by a shake of the hand and the expression of a few words of faith, hope, and thanksgiving. So you see, dear friends, that eyes *alone* do not always make us happy; neither does the loss of sight *always* make us unhappy.

CONVENTION NOTICES.

The Michigan State Bee-keepers' Association will meet in Grand Rapids, Mich., on Thursday, Dec. 31st, 1891, and Friday, Jan. 1st, 1892. G. E. HILTON, Sec., Fremont, Mich.

The Eastern Iowa Bee-keepers' Association will meet in De Witt, Ia., Dec. 2 and 3, 1891. Bring in your report. There will be a fine place to exhibit every thing pertaining to the apiary. FRANK COVERDALE, Sec., Welton, Ia.

The Northwestern Bee-keepers' Society will hold its annual convention at the Commercial Hotel, corner of Lake and Dearborn Sts., Chicago, on Thursday and Friday, Nov. 19 and 20, at 9 A.M. Arrangements have been made with the hotel for back room, one bed, two persons, $1.75 per day each; front room, $2.00 per day for each person. This date occurs during the exposition, when excursion rates on the railroads will be one fare for the round trip. W. Z. HUTCHINSON, Sec., Flint, Mich.

In honor of the visit of Prof. A. J. Cook and A. I. Root, Mr. C. W. Abbott, President of the Southern California Bee-keepers' Association, will call a special session, to be held in Los Angeles, at the Chamber of Commerce, January 6 and 7, 1892. The Chamber of Commerce is a good location, and the California permanent exhibit in an adjoining room will no doubt be of interest to all, as it is one of the best exhibits of the products of this section in the State. G. W. BROADBECK, Sec.
Los Angeles, Nov. 7.

As previously stated, the meeting of the North American Bee-keepers' Association will take place at Albany, N. Y., Dec. 8 to 11. Our president has been working hard, and has secured reduced railroad rates from Chicago and the Mississippi River, and from the South. The meeting promises to be the best in the history of the association, and we hope the West will send a good delegation. Besides personal members' attendance, we expect every local and State association to send one or more delegates. This will be a good occasion for Western bee-men to become acquainted with the noted bee-keepers of the East, nearly all of whom will attend this meeting. Bee-keepers desiring to attend will please send their names either to the president, Mr. P. H. Elwood, Starkville, N. Y., or to the undersigned, as we intend to publish a full list of those who are expected to be present. C. P. DADANT, Sec., Hamilton, Ill.

PROGRAM

of the North American Bee-keepers' Association, to be held in Agricultural Hall, Albany, N. Y., Dec. 8 to 11.

DECEMBER 8—INFORMAL MEETING.

FIRST DAY—WEDNESDAY, DEC. 9.

9 A. M.—President's Address.—P. H. Elwood, Starkville, N. Y.

Appointment of Committees, and routine business. Question-box.

2 P. M.—The Prevention of Swarming.—W. F. Clarke, Guelph, Ontario, Canada. Discussion. Question-box.

7:30 P. M.—The Outlook for Apiculture at the Columbian Exposition.—A. B. Mason, Auburndale, O. Discussion.

SECOND DAY—THURSDAY, DEC. 10.

9 A. M.—Election of Officers. Selection of next place of meeting. Business of the Association. Volunteer contributions. Discussion. "Prices of Honey and Sugar."

2 P. M.—Can we settle upon two sizes of sections as standard? —C. C. Miller, Marengo, Ill. Discussion. Question-box.

7:30 P. M.—The Bees, the Location, and the Apiarist.—G. M. Doolittle, Borodino, N. Y. Discussion.

THIRD DAY—FRIDAY, DEC. 11.

9 A. M.—The Italian Bees. What are the principal points of excellence, and to which qualities should we give the preference?—G. H. Knickerbocker, Pine Plains, N. Y. Discussion. Question-box.

2 P. M.—Some facts not generally known about rendering beeswax.—R. F. Holtermann, Brantford, Canada.

ADJOURNMENT.

REDUCED RATES ON RAILROADS.

One and one-third regular fare for round trip. The concession is for delegates and others going to Albany to attend the North American Bee-keepers' Convention, Dec. 8—11, 1891, from the following described trunk-line territory:

By the Central Traffic Association from all points in Ohio, Indiana, Illinois, Pennsylvania, as far east as Pittsburg; New York, as far east as Salamanca; and Ontario, Canada, as far north as Toronto. Trunk Line Association of New York, Pennsylvania, and New Jersey, and the Southern Passenger Association, which includes all the principal roads of the Southern States.

INSTRUCTIONS TO PERSONS ATTENDING THE MEETING.

1. The concession is for delegates and others going to Albany from any of the above described trunk-line territory.

2. If the startingpoint is located on some small road, or one not in either one of the three trunk-line associations making the concession, tickets should be purchased only to the most convenient place where a trunk-line certificate can be obtained, and thence by direct routes only, through to place of meeting.

3. The going ticket must be purchased within three days before, or not more than three days after, the opening date of the meeting, otherwise no reduction in fare will be made on the return passage.

4. Each person availing himself of the concession will pay full tariff fare going to the meeting, and get a certificate filled in on one side by the agent of whom the ticket is purchased. (The agents keep the certificates in stock.)

5. Present the certificate to the secretary at the meeting, that the other side may be filled in. Certificates are not transferable.

6. On presentation of the certificate, duly filled in on both sides, within three days (Sunday excepted) after the adjournment of the meeting the ticket agent at Albany will return the person to his starting-point at one-third regular fare. The return ticket will be issued over the route used in going to meeting, and will be available for continuous passage only.

VERY IMPORTANT.

7. It is absolutely necesary for each passenger, before starting, to obtain a certificate from the ticket agent at the point at which the going ticket is purchased, otherwise said passenger will be unable to obtain special rate for return journey, and will be obliged to pay full tariff rates in both directions.

8. Delegates, and others availing themselves of the concession, should present themselves at the office for certificates and tickets at least thirty minutes before the departure of trains.

9. Every person attending the meeting should get a certificate, no matter how short the distance, as the more certificates are signed at the meeting, the easier it will be to secure reduced rates another year.

I pray not that thou shouldest take them out of the world, but that thou shouldest keep them from the evil.—JOHN 17:15.

Do not fail to hear Dr. Miller sing some genuine bee-keepers' songs at the North American convention at Albany. The words were composed by the vice-president, Eugene Secor, and the music by the doctor himself.

BRO. NEWMAN, of the *American Bee Journal*, has just written us that the condition of his health is such that he probably will not be able to attend the next convention of the N. A. B. K. A., at Albany. No one has worked more earnestly or faithfully for the success of this organization than he, and we shall all regret his enforced absence.

WHEN we attend conventions, whether it be the North American or that of any other association, let us lay aside, at least for the time, all personalities and personal flings. Some conventions which we have attended in the past year have been marred a little by some unpleasant things said of those in attendance. We come to love and to learn, not to give and receive personal attacks.

THE first number of *The Bee Journal*, published at Winona, Minn., puts in a creditable appearance. The articles and editorials are good, and we wish it success. We regret to see it take a name so similar to the "Old Reliable," published at Chicago. *The American Bee Journal*. In another column will be found an excellent clipping from the new paper; but for the life of us we hardly knew how to credit it in such a way that it would be known from the Chicago bee-journal. There are lots of good names; for instance, *The Northwestern Apiarist*. It is not too late to change now.

THIS journal will probably be in your hands about the time—possibly a little before—the convention in Chicago meets. I expect to go home with Dr. Miller, Marengo, Ill., and stay a couple of days; then I shall be a couple of days in Mitchell, South Dakota. From that point I shall go to Denver, Col., about Nov. 30. On the morning of Dec. 1 we leave Denver for Salt Lake City, to attend the convention there Dec. 3d and 4th. Letters may be addressed to me at any of the above points. Then I expect to visit H. A. March, Fidalgo, Wash. Returning, I shall be present at the convention in Sacramento, Dec. 16 and 17. Descriptive notes of travel will appear in each issue, commencing with our next.

UNCLE AMOS has become a second time a grandpa. May be some of you would like to rejoice with us in the advent of a little stranger that arrived at the home of our son-in-law John, on the morning of Nov. 13. John, you know, is the husband of our eldest daughter, Maud. The young mother is as happy and smart as can be, and the inhabitants of Rootville are all talking about the two boys. Howard Root Calvert and Leland Ives Root, who are to take charge of and keep up the name and reputation of the Home of the Honey-bees when their fathers become old and burdened under the load of business. May God's blessing rest on the boys! and while they build on earth, may they also have the spirit that will enable

them to build for eternal life on the solid rock, Christ Jesus.

LOOK OUT FOR HIM!

Do not send money or any thing else to a man who has recently headed his stationery as follows:

JOHN A. BRIGGMAN,
General Commission Merchant and Broker.
Melons, Potatoes, Apples, and Cabbage, in Car Lots a Specialty.
P. O. Box, 151.] [Telephone 751.
Columbus, O.,.....189

And, by the way, do not send honey to *anybody* unless you have first found out from some bank or reliable person that he is trustworthy. After some further investigation we found that he was in Columbus; but when last heard of he was in Pittsburg, probably starting a commission house there.

WHO WILL BE AT ALBANY.

SINCE the announcement elsewhere, we have learned that, in addition to the other distinguished bee-keepers mentioned, there will be present, at Albany, J. E. Crane, Julius Hoffman (the inventor of the Hoffman frame), George H. Ashby, E. L. Pratt, John Vandervort, Frank Benton, Thomas Pierce, and last, but not least, Capt. J. E. Hetherington, the most extensive bee-keeper in the world. Verily, this promises to be the best attended convention in many years; and never before in the history of the association, if we are correct, have we had the assurance that so many eminent bee-keepers would be present. Program, railroad rates, etc., will be found in another column. We are told that some of the most interesting topics which are expected to be brought up are not mentioned in the program, for the reason that it was not possible to learn whether the parties assigned to them could take them.

ANOTHER SAFE ARRIVAL OF IMPORTED QUEENS AT HONOLULU.

WE have just been advised of the safe arrival of three untested queens at Honolulu, mailed here Sept. 11. They were successfully introduced, and are doing nicely. Our customer writes: "They are little beauties, and it does one's eyes good to look at them. They were as lively as crickets when they arrived." He further tells us that, out of the seven we have already mailed him, six were received alive. This, for a distance of nearly 6000 miles, is good enough; and if the dozen or so we have mailed to Australia do as well, we will try sending a queen around the world by mail. It looks almost impossible, but we believe it is among the possibilities now. Say! why don't you who import Punic queens have them sent by mail direct from the coast of Africa, and thus save you a very great expense. We hope, in a future issue, to give an engraving, with complete instructions on the foreign mailing of queens.

HOW TO SHARPEN SHEARS.

DR. MILLER says he does not know how, therefore I will tell you as well as I can; and as it is quite likely some of our readers can give us some additional hints, we invite them to send along their contributions; and, all together, it will be strange if we can not furnish our wives and daughters with shears that will cut beautifully—yes, clear to the point. Somehow it seems as if every time I ask Mrs. Root for a pair of shears, they are in such bad order that I pronounce them a disgrace to the household.

First, see to the rivet. You will almost always find it loose. Most shears nowadays have a screw that can be turned up with a screwdriver. Turn it up so as to be just right and not too tight; then, unless it turns very hard, you will need to take a light hammer and head down the rivet until the screw can not turn of itself. To do a good job you must lay the head of the screw on something very solid—the head of an ax or flat-iron, or an iron wedge, for instance. After you have got the screw just right, take the oil-can that belongs to the sewing-machine and lubricate the joint so it will work easily, even if it is close. Now see whether the edges of the blades strike each other, and hug close at every point in closing. Sometimes when the handles are shut clear together the points of the blades are open a little, crocodile fashion. Now, it is very shiftless to have shears around in this predicament. If you look at the picture, inside first cover, last issue, you will notice a little projection on one of the handles where it strikes the other. This projection is to be filed or ground off until the points just pass each other and no more. If the blades are bent, go to work skillfully with your hammer and anvil, and you can get the bend out. After having done so you can sharpen with grindstone or whetstone; but I prefer a very fine, hard-tempered, flat file, such as you can buy at the jeweler's or at most city hardware stores. Fasten the blade of the shears in the vise, and with the file you can give it just the shape you want; then finish off with an oilstone. Do not file or grind the blades on the inside unless there has been a crook, and you wish to dress out the crook. This is a little difficult, but it can be done if you take pains. The grinding should be done as you grind a chisel or plane-bit—all on one side. When the shears are held on the grindstone they should be held steady, and at an exact angle. If very dull, keep grinding until the round dull corner disappears. Then with a whetstone dress off the feather edge, and, with a drawing motion, make a keen sharp corner the whole length of the blade. You can improve shears made of chilled iron in this same way; but as a rule it does not pay to waste much time on them when you can get good steel-blade shears for from 20 to 50 cts. With a file you can easily tell whether your shears are too soft. If so, the cheapest way is to get a new pair. In fact, I believe a new pair is very often about as cheap as you can fix a pair of old ones that have always been poor.

A CALIFORNIA STATE BEE-KEEPERS ASSOCIATION; A CASE OF "BAMFUZZLING."

THE Southern California Bee-keepers' Association met in convention Oct. 23, at Los Angeles. By reading the accounts in the California papers, it is evident that they had a stormy session. A majority of the members, it seems, and with some show of reason, desired to merge the organization into a State association. In order to accomplish this an amendment was offered; but as it required a two-thirds vote, it was lost after some wrangling within just one vote, much to the displeasure of the majority. The president and some others opposed the amendment with all their might and main. The report goes on to say that "the eloquence grew vituperative, and the sacred walls re-echoed with expressions sometimes inconsistent with the Christian doctrine of love." At the election of officers which followed, the majority seized the opportunity and elected a new president. When a reporter approached one of the members, the latter said that their former president had been bamfuzzling the members long enough. "Bamfuzzling," said the reporter drolly, "is probably a technical expression referring to the honey business." Joking aside, we very much regret the turn that affairs took, and we must admit that we are on the side of the majority, because, if the great State of Cal-

ifornia with its thousands and perhaps its millions of colonies and unlimited honey resources, does not already have a *State* bee-keepers' organization, it surely *ought* to have one, and mere technicalities in the constitution or in parliamentary law ought not to stand in the way or give rise to ill feeling. We trust that a State organization may yet be perfected.

THE NORTH AMERICAN AT ALBANY.

THE time of the convention of the North American Bee-keepers' Association is Dec. 8 to 11, at Albany, N. Y. The president and secretary have been working hard on the program, which will be announced soon. Reduced railroad rates have been secured. Just what they are, and over what roads they extend, we are at present not informed. We presume they apply to the Lake Shore & Michigan Southern, New York Central, West Shore lines, and others leading into Albany, at one and one-third fare for round trip. Leading bee-men will be present. We already have authority for announcing that, among other distinguished bee-keepers, there will be present Dr. Miller, of Illinois; Dr. A. B. Mason, of Ohio; W. F. Clarke, of Canada; G. M. Doolittle, of New York; Geo. H. Knickerbocker, of New York; R. F. Holtermann, of Canada; A. E. Manum, of Vermont; W. Z. Hutchinson, of Michigan; Hon. J. M. Hambaugh, of Illinois; S. Corneil, of Canada; Vice-President Secor, of Iowa; President Elwood, of New York; Secretary C. P. Dadant, of Illinois. Of course, we expect to be present ourselves, and to see a good many notables besides those mentioned. With such a coterie of bee-keepers, especially when we can have the two doctors, A. B. Mason and C. C. Miller, we are bound to have a good and profitable time. It can not be otherwise; because when so many from a distance have signified their intention of being present at this early date, it means a *rousing big attendance*. So, be sure to come, whether you have received a special invitation or not, and bring your wives, your sisters, and your sweethearts. All ladies are *specially* invited. Albany is a pleasant city, has good hotel accommodations (see notice elsewhere), and is located among some of the largest and best bee-keepers in the world.

Later.—The program and reduced R. R. rates are at hand and is published elsewhere.

SPECIAL NOTICES.

THE LAST CALL.

Remember, only two weeks remain in which to receive the largest discount for early orders; namely, 5 per cent. A good many have written, expecting to take advantage of the discount before Dec. 1, and we are prepared to meet the wants of a much larger number. Send on your orders.

POTATOES AT A LOW PRICE.

We have not yet managed to buy any at 25c yet, but we can sell very fine nice White Star potatoes at only 40c per bushel, if you can't do any better at your home. The above, however, does not include package; a sack to hold them will cost 10c for 2 bushels; or a barrel, 15c for 3 bushels. If you want them in new slatted potato boxes, 15c for each bush.

SOMETHING TO SELL.

Almost all periodicals, especially at this season of the year, are offering something for sale, or something for premiums, etc., and this is all right if honestly managed; but instead of continually asking for your money, I have wondered how it would seem to turn about and let *you* sell *us* something; so, here goes. We want alsike, buckwheat, honey, wax, etc., and we are going to try to see how many more things we can manage to buy of you.

COMB AND EXTRACTED HONEY.

We are selling choice white comb honey, in 12 and 24 lb. cases, at 17c per lb. In lots of about 200 lbs., in cases packed in large crates for safe carriage by freight, 16c per lb.

Extracted basswood and clover, mixed, in 60-lb. cans, at 9c. Texas basswood, in 6-lb. cans, at 8c; or in barrels of about 400 lbs., at 7¼c. Samples to intending buyers on application.

MOSS FOR PACKING STRAWBERRY AND VEGETABLE PLANTS, OR FOR GENERAL GREENHOUSE PURPOSES.

By taking a very large stock during the recent dry weather, so the men could go into the swamps to gather it, we have been enabled to offer the nicest moss I have ever got hold of, at the extremely low price of 25 cents per bushel. If wanted by mail, we can send it to you in quantities of one peck for only 20 c., postage and all. Moss is a rather difficult substance to measure or weigh, as its weight depends almost entirely on the amount of moisture it contains; and if measured by the bushel, it depends, likewise, on how hard it is packed into the bushel basket. We will, however, try to give you fair measure. As a mulch for starting plants in seed-boxes and seed-beds, there is nothing in the world equal to it.

THICK-TOP BROOD-FRAMES WITH DIVIDED TOP.

In making up thick-top frames we get on many boards a piece not wide enough for a top-bar, but which will make half of one. Two of these halves make what we call a divided top-bar, which many use and prefer. In putting the frames together, a piece of foundation can be placed between the two halves, to fasten it. Many go to the expense of having top-bars split from one end nearly through the other for the purpose of inserting the sheet of foundation when these divided tops would answer just as well, and can be furnished much cheaper. Since we began saving the pieces as above we have an accumulation of several thousand thick-top frames with these divided tops more than we have had calls for. Our regular thick-top frames sell for $1.50 per 100; but to close these out we offer them at $1.20 per 100, or $2.75 per box of 250; 500 or more at $1.00 per 100, in the flat, without comb-guides. If you want wooden comb-guides, add 10c per 100. Most of them are packed 250 in a box.

SOME TYPEWRITERS AT A BARGAIN.

We have, for the last two or three years, been using exclusively the Remington typewriters in our office, for we believed them, all things considered, the most durable. Besides, there is an advantage in having machines all of one kind, so that any of our operators can use any of them without learning a new keyboard. Something over a year ago the Hammond typewriter came out with what they called the Universal keyboard, by means of which a person who was accustomed to operating the Remington, for instance, could have a Hammond with keys arranged in the same way, and use it without learning over again. After examining the Hammond machine we were so much pleased with it that we have secured one for our use. Dr. Miller and G. M. Doolittle both use the Hammond, deciding on that after a careful examination of other makes. The regular price of a new Hammond is $100; but we have got track of two machines, one with the Ideal and the other with the Universal keyboard, both practically new, and in first-class order, that we can sell for $75 each cash, if unsold on receipt of order. Here is a rare chance for some one. We have also an old-style Remington No. 1, which writes all small caps, *like* THIS, which we offer for $25. There is probably more wear in one of these old No. 1 machines than in any other typewriter ever made. We have had this one in use almost ten years, yet it does good work, and, with proper care, will do good work for years to come. We prefer a machine with both caps and small letters, hence we offer this for sale at the above price, which makes it a bargain.

We have also on hand three of the old-style single-case World typewriters in good condition, that we will close out at $5.00 each. Regular price is $10.00, and these are practically new machines, although they have been in stock for some time. Further particulars, and samples of work, furnished to intending purchasers on application, if not previously sold. We apprehend that, at these prices, they will be snapped up quick.

Books for Bee-Keepers and others.

Any of these books on which postage is not given will be forwarded by mail, postpaid, on receipt of price.

In buying books, as every thing else, we are liable to disappointment if we make a purchase without seeing the article. Admitting that the bookseller could read all the books he offers, as he has them for sale, it were hardly to be expected he would be the one to mention all the faults, as well as good things about a book. I very much desire that those who favor me with their patronage shall not be disappointed, and therefore I am going to try to prevent it by mentioning all the faults, so far as I can, that the purchaser may know what he is getting. In the following list, books that I approve I have marked with a *; those I especially approve, **; those that are not up to times, †; books that contain but little matter for the price, large type, and much space between the lines, ‡; foreign, §. The bee-books are all good.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice, that you can judge of the size of the books very well by the amount required for postage on each.

8 | Bible, *good print*, neatly bound..... 25
10 | Bunyan's Pilgrim's Progress**..... 35
20 | Illustrated Pilgrim's Progress**..... 75

This is a large book of 425 pages and 175 illustrations, and would usually be called a $2.00 book. A splendid book to present to children. Sold in gilt edge for 25c more.

6 | First Steps for Little Feet. By the author of the Story of the Bible. A better book for young children can not be found in the whole round of literature, and at the same time there can hardly be found a more attractive book. Beautifully bound, and fully illustrated. Price 50 c. Two copies will be sold for 75 cents. Postage six cents each.

5 | Harmony of the Gospels..... 35
3 | John Ploughman's Talks and Pictures, by Rev. C. H. Spurgeon*..... 10
1 | Gospel Hymns, consolidated Nos. 1, 2, 3, and 4, words only, cloth, 10 c; paper..... 05
2 | Same, board covers..... 20
5 | Same, words and music, small type, board covers..... 45
10 | Same, words and music, board covers..... 75
3 | New Testament in pretty flexible covers... 05
5 | New Testament, new version, paper covers. 10
5 | Robinson Crusoe, paper cover..... 20
4 | Stepping Heavenward**..... 18
15 | Story of the Bible**..... 1 00

A large book of 700 pages, and 274 illustrations. Will be read by almost every child.

5 | The Christian's Secret of a Happy Life**.... 25
8 | Same in cloth binding..... 50
| "The Life of Trust," by Geo. Muller**..... 1 25
1 | Ten Nights in a Bar-Room, T. S. Arthur*.. 03
5 | Tobacco Manual**..... 45

This is a nice book that will be sure to be read, if left around where the boys get hold of it, and any boy that reads it will be pretty safe from the tobacco habit.

BOOKS ESPECIALLY FOR BEE-KEEPERS.

[Price without postage.
Postage]

15 | A B C of Bee Culture. Cloth..... 1 10
5 | A Year Among the Bees, by C. C. Miller... 45
5 | Advanced Bee Culture, by W. Z. Hutchinson 50
14 | Bees and Bee-keeping, by Frank Cheshire, England, Vol. I.§..... 2 36
21 | Same, Vol. II.§ .....r 2 79
or, $5.25 for the two, postpaid.
| Bees and Honey, by T. G. Newman..... 1 00
10 | Cook's New Manual. Cloth..... 90
5 | Doolittle on Queen-Rearing..... 95
2 | Dzierzon Theory 10
1 | Foul Brood; Its Management and Cure; D. A. Jones. 09
1 | Honey as Food and Medicine..... 5
10 | Langstroth on the Hive and Honey-Bee‡.. 1 40
15 | Langstroth Revised by Ch. Dadant & Son.. 1 85
10 | Quinby's New Bee-Keeping..... 1 40
5 | Thirty Years Among the Bees, by H. Alley. 35
4 | Success in Bee Culture, by James Heddon 46
| Handling Bees. By Langstroth. Revised by Dadant..... 8
| Bee-keeping for Profit, by Dr. G. L. Tinker 25
The Apiary; or, Bees, Bee-Hives, and Bee Cul-
5 | The Honey Bee, by Thos. William Cowan.... 95
ture, by Geo. Neighbour & Sons, Englands. 1 75
British Bee-Keeper's Guide-Book, by Thos.
Wm. Cowan, Esq., Englands..... 40
3 | Merrybanks and His Neighbor, by A. I. Root 25

MISCELLANEOUS HAND-BOOKS

5 | A B C of Carp Culture..... 35
3 | A B C of Potato Culture, Terry**..... 35

This is T. B. Terry's first and most masterly work. The book has had an enormous sale, and has been reprinted in foreign languages. When we are thoroughly conversant with friend Terry's system of raising potatoes, we shall be ready to handle almost any farm crop successfully. It has 48 pages and 22 illustrations.

5 | A B C of Strawberry Culture, by T. B. Terry and A. I. Root, 144 pages; 32 illustrations 35
5 | An Egg-Farm, Stoddard**..... 45
5 | Amateur Photographer's Hand-book**..... 70
| Barn Plans and Out-Buildings*..... 1 50
| Canary Birds. Paper, 50 c; cloth*..... 75
| Draining for Profit and Health, Warring.. 1 50
5 | Eclectic Manual of Phonography; Pitman's System; cloth..... 50
6 | Fuller's Practical Forestry‡..... 1 40
10 | Fuller's Grape Culturist**..... 1 40
10 | Farming For Boys*..... 1 15

This is one of Joseph Harris' happiest productions, and it seems to me that it ought to make farm-life fascinating to any boy who has any sort of taste for gardening.

7 | Farm, Gardening, and Seed-Growing**..... 90

This is by Francis Brill, the veteran seed-grower, and is the only book on gardening that I am aware of that tells how market-gardeners and seed-growers raise and harvest their own seeds. It has 166 pages.

10 | Gardening for Pleasure, Henderson*..... 1 40

While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part; and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations.

12 | Gardening for Profit, new edition**..... 1 85

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts.

| Gardening for Young and Old, Harris**.... 1 25

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

10 | Garden and Farm Topics, Henderson**.... 75
| Gray's School and Field Book of Botany... 1 80
5 | Gregory on Cabbages; paper*..... 25
5 | Gregory on Squashes; paper*..... 25
5 | Gregory on Onions; paper*..... 25

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

10 | Household Conveniences..... 1 40
2 | How to Propagate and Grow Fruit, Green* 25
2 | Injurious Insects, Cook..... 25
10 | Irrigation for the Farm, Garden, and Orchard, Stewart*..... 1 40

This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills, to take the place of rain, during our great droughts, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

3 | Maple Sugar and the Sugar-bush**..... 35

By Prof. A. J. Cook. This was written in the spring of 1887 at my request. As the author has, perhaps, one of the finest sugar-camps in the United States, as well as being an enthusiastic lover of all farm industries, he is better fitted, perhaps, to handle the subject than any other man. The book is written in Prof. Cook's happy style, combining wholesome moral lessons with the latest and best method of managing to get the finest syrup and maple sugar, with the least possible expenditure of cash and labor. Everybody who makes sugar or molasses wants the sugar-book. It has 42 pages and 35 cuts.

1 | Poultry for Pleasure and Profit**..... 10
11 | Practical Floriculture, Henderson* 1 35
| Peach Culture, Fulton's..... 1 50
10 | Profits in Poultry*..... 90
10 | Small-Fruit Culturist, Fuller..... 1 40
10 | Success in Market-Gardening*..... 90

This is a new book by a real, live, enterprising, successful market-gardener who lives in Arlington, a suburb of Boston, Mass. Friend Rawson has been one of the foremost to make irrigation a practical success, and he now irrigates his grounds by means of a windmill and steam-engine whenever a drought threatens to injure the crops. The book has 208 pages, and is nicely illustrated with 110 engravings.

| Ten Acres Enough..... 1 00
| The Silo and Ensilage, by Prof. Cook, new edition, fully illustrated 25
| Talks on Manures*..... 1 75

This book, by Joseph Harris is, perhaps, the most comprehensive one we have on the subject, and the whole matter is considered by an able writer. It contains 366 pages.

2 | The Carpenter's Steel Square and its Uses. 15
10 | The New Agriculture; or, the Waters Led Captive..... 75
2 | Treatise on the Horse and his Diseases..... 10
3 | Winter Care of Horses and Cattle..... 40

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in the book. It has 44 pages and 4 cuts.

8 | What to Do and How to be Happy While Doing It, by A. I. Root..... 50
3 | Wood's Common Objects of the Microscope**..... 47

A. I. ROOT, Medina, O.